

The
ROLLAMO

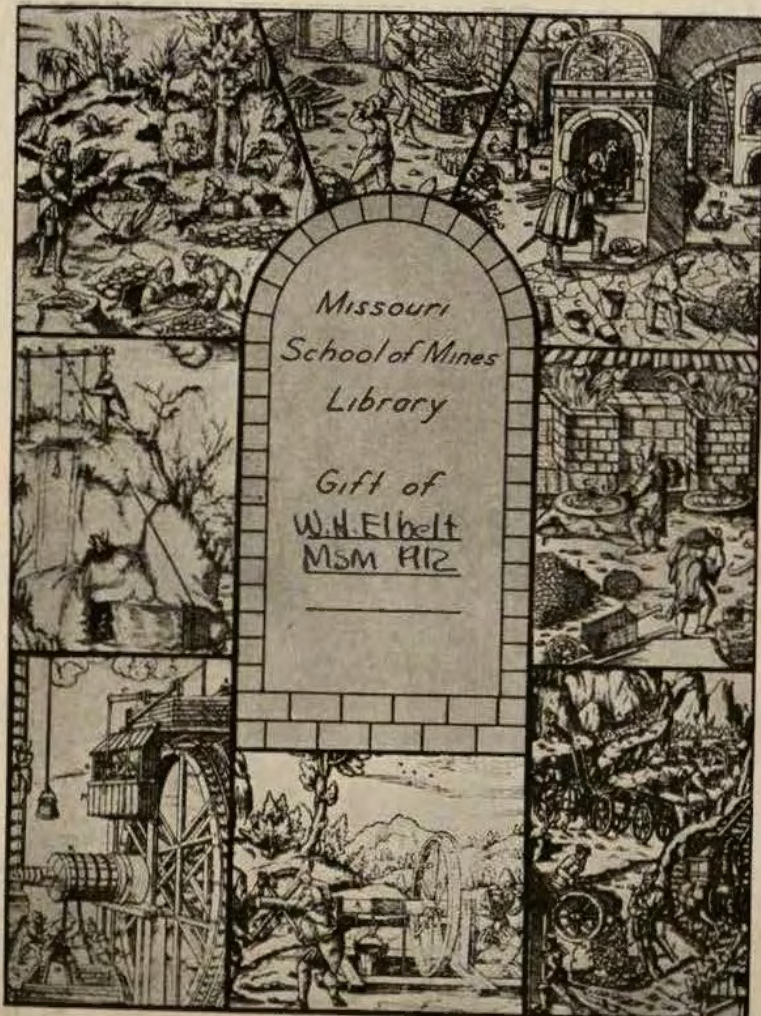


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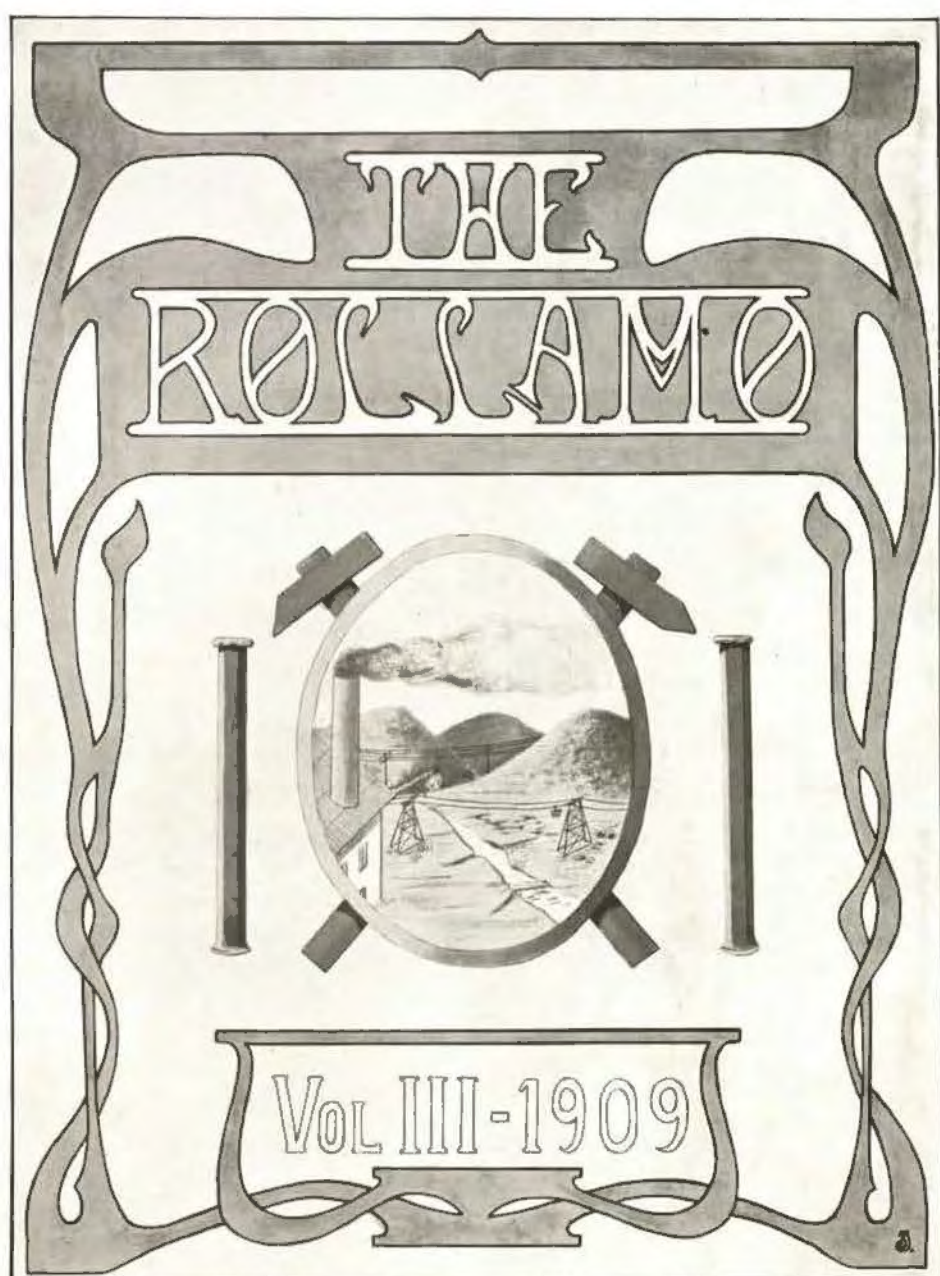
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DIRECTOR L. E. YOUNG

STRAUSS PORTRAIT



Published Annually by the Students of the
Missouri School of Mines and
Metallurgy

To
Lewis E. Young

Director of the School,

this book is dedicated



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ACKNOWLEDGMENTS.

Our very hearty thanks are due to all those who have so kindly assisted us in our work on this publication. Out of the many who have offered to help, the following persons have shown their sincerity, thereby earning the gratitude of all those who are interested in the Rollamo.

Mr. D. C. Jackling, with his characteristic generosity, has subscribed \$50 towards defraying the cost of this publication. Mr. Jackling's interest is very much appreciated by everyone.

Mr. J. C. Reid is another of our generous supporters, having subscribed for no less than eight copies. We sincerely trust that Mr. Reid will not be disappointed.

Director L. E. Young has helped us in a thousand ways and has always shown a keen interest in our work. It gives us much pleasure, therefore, to dedicate this book to him, and to give credit to whom it is really due.

We owe acknowledgment to the following of our Alumni who have contributed articles in this issue:

Mr. G. A. Duncan	 "Past and Future."
Mr. Chas. Hoyle	 "Modern Cyaniding."
Mr. S. J. Gormley	 "Advice to Graduates."
Mr. A. J. Seltzer	 "Life in China."
Mr. G. W. Dean	 "Bolivia as a Possible Field for American Engineers."

We are also very grateful to Professors Harris and McRae for the assistance they rendered us in compiling our "Personals" and putting us in touch with some of our old students.

The "Colonial Minstrel" girls and orchestra helped us very considerably by giving a show for the benefit of this publication, thereby setting the example for the M. S. M. Minstrel Troupe. Accounts of these performances will be found elsewhere in this book, but we must acknowledge our gratitude to all of those who so kindly and generously gave their time and assistance.

To Mr. De La Vergne we owe thanks for his neat design for our Contents page, which will be found at the beginning of this book, and to Mr. S. Jochamowitz for his clever title page, photographs, and other assistance. Mr. Hammond Ladd also contributed some really artistic photographs, and has been of great assistance in helping us to arrange these.

Miss B. Harrison, however busy she may be, is always ready to give us her cheerful assistance, and we don't know what we should have done without her. Miss Heller also, has faithfully banged away at her typewriter on our behalf and has been a great help in many ways.

To Mr. D. P. Hynes we owe a very interesting and faithful account of the M. S. M. Minstrel Show. We also are indebted to the following students for articles:

- | | | |
|----------------|-------|--------------------------|
| C. A. Pierce | | Junior Class History. |
| R. B. Mitchell | | Sophomore Class History. |
| S. S. McNair | | Freshman Class History. |

We regret that, owing to illness, we had to accept the resignation of Mr. G. T. Twyman as Business Manager of the Rollamo Board. Mr. Twyman worked very conscientiously for us during the summer vacation, and strove hard to work for us under very trying circumstances. Let us hope he will be back at school again next year.

The engravings in this book are the work of the Electric City Engraving Co., of Buffalo, N. Y., to whom we feel that we owe no small debt of gratitude. Their work has always been of a very high order, and they have always been prompt and obliging in their dealings with us.





In presenting Volume III of the Rollamo to the students and Alumni of M. S. M. we feel that it is impossible for us to conscientiously apologize for its shortcomings and failings. This is not because we are blind to the faults of our book, but because we are confident that we have done all that could be done with the very meagre and indifferent contributions that were sent in. Whether the lack of contributions is due to genuine modesty or to equally genuine laziness and indifference we are not prepared to state, but we hold our own opinions on the subject.

We are not grumbling about our financial support. That indeed, has always been most generous from both students and Alumni alike. But a book cannot exist on money alone, and the work of the Rollamo Board is essentially to organize and edit. Instead of this, the present Rollamo Board have had to do over ninety per cent of their drawings and written matter, and if the Year Book is to flourish in years to come it is very certain that it will have to receive more help in the future than it has in the past.

It has been our aim and object, in the present issue, to try and depart from the usual time-worn path usually associated with college annuals, deleting as much as possible all long and wearying descriptions, and to substitute for these sketches and photographs, which, as the years pass, shall serve to remind us of the days we once spent together at M. S. M.

Much grumbling sometimes goes on about the way the Rollamo Board is elected, and a word in defense of this will not be out of place. Any scheme of student election must necessarily defeat its own object, as it is not the men who are the most popular, or who can canvass the greatest number of votes, that will as a rule make the best editors and work the hardest for the welfare of their book. It is better to leave this matter in the hands of the retiring board, who know the difficulties that have to be faced, and who will try to select men whom they know will do their best to work together for a common end. Neither is it fitting that any retiring board should try and hamper their successors by any "Constitutions" and rules. The only essential rule is that a strict account be kept of all money, and a copy of this left at the office every year.

We decided to abandon the idea of having this book published by the Junior Class. This school is not yet large enough to permit the selection of the editors from any one class. We think that these should be elected according to their ability and qualifications, irrespective of any class or organization, aiming at

the same time to get together men who are willing to co-operate and strive together for the honor of their school and this publication.

It is to be hoped that no one will take our jokes too seriously just because they are in print. We must also be allowed the poet's license to distort facts a little, for this book would be a fearsome thing if it adhered too closely to the truth.

In conclusion, we desire to thank those who, by sundry little acts of courtesy and help, have assisted us in this work. It has been a little more strenuous than we expected, but we sincerely believe that the Rollamo is the best possible medium of bringing the attention of prospective students to the advantages of an education at M. S. M.

Finally, we desire to wish all good luck to the Board of 1910.





FACULTY.



ALBERT ROSS HILL, Ph. D., LL. D.,
President of the University of Missouri

Faculty

DR. AUSTIN LEE McRAE, Sc. D.

Professor of Physics. B. S. University of Georgia, 1881. S. D. Harvard University, 1886.

"Doc" is noted for his big beaming blue eyes and his pleasant smile. Has unlimited patience. Gladly answers all our questions, both simple and difficult, and never shows that he is weary. Dr. McRae is a student's friend both in adversity and success.



ELMO GOLIGHTLY HARRIS, C. E.

Professor of Civil Engineering. C. E. University of Virginia, 1882.

A "civil" man as well as an Engineer. Stands for all the good which his true Southern breeding implies. Gifted musically (turkey calls) and once mistook the squawks of an itinerant Professor for that of a turkey. Otherwise he is a mighty Nimrod. Has invented a new card game in Hydraulics, but he always holds the ace of trumps.



GEORGE REGINALD DEAN, C. E.

Professor of Mathematics. C. E. 1890, B. S. 1891, School of Mines.

He's all right as long as you don't put the second differential equal to zero. If you do that, you'd better watch out. Fond of animals, Freshmen excepted. Chief aversion, feeding Mathematics with a spoon. Mainstay of the Rollamo Joke Department. Tells fish stories.





LEON STACY GRISWOLD, A. B.

Assistant Professor of Geology and Mineralogy
A. B., Harvard University, 1889.

Surrounded by a thick coating of Boston ice, he appears ordinarily to be either bored or "sore." When the ice melts he is a "good fellow," a keen story teller, and a thoroughly agreeable companion. In addition to his attainments as a geologist he is a good camp cook, a teamster, a first-class "single-jack" miner, and a pedestrian without an equal. He would like to find out who took Vol. 36. Gives a reading course.



VICTOR HUGO GOTTSCHALK, M. S.

Professor of Chemistry, B. S. 1898, M. S. 1900,
School of Mines.

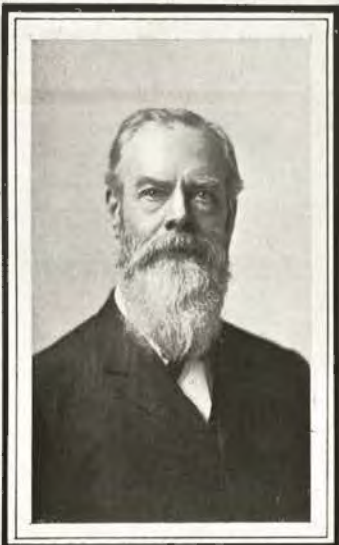
The terror of the Lab-fakirs. A kind of Sherlock Holmes in detecting the graphitic structure of Freshman Lab. Experiments. Vies with Prof. Copeland for the honor of being the fastest talker in the School.



DURWARD COPELAND, S. B.

Professor in Metallurgy. S. B. Massachusetts
Institute of Technology, 1903.

The man who gives us reasons. Lightning blast furnace artist, though he can't read his own writing on the blackboard (nor can anyone else). If you can't get your work under Prof. Copeland, you'd better quit; there's no hope for you. Chief occupation absconding with books from the Library and then referring students to the same.



PAUL JULIUS WILKINS, B. S.

Instructor in Modern Languages. B. S. Michigan
A. & M. College, 1869.

His retentive memory extends further back than that of the "oldest inhabitant." Relentlessly he instils "Padre nuestro" and "Dos muchachos" into the wooden-headed Sophomores, year after year. Uses the "anecdote method" of teaching. A hale, clear minded "youngster" of sixty odd years, who is a better man in an athletic way than most of his pupils. Spends his spare time bowling and smoking "twofas." Authority on breadmaking, barnacles and balloons. Surnamed "Peter Jimmie."



JOHN BENNETT SCOTT, B. S.

Instructor in English. B. S. in General Science,
School of Mines, 1907.

Discoverer of "Unity, Coherence and Emphasis," of which Freshmen know nothing. Knows how to use a turkey-call to advantage, and once succeeded in badly fooling Prof. Harris and a certain Senior with this instrument, much to their disgust. Can even make a literary production out of the minutes of the Faculty meetings, to which all listen with awe and wonder. A man whose heart is in the right place.



LEON ELLIS GARRETT, B. S.

Assistant Professor in Mathematics. B. S. School
of Mines, 1901.

A man who is always ready to give you a helping hand, and to whom many students in this School owe a debt that they can never repay. Will always cheerfully give his time to help those that are sticking in the mud. A thorough, and conscientious teacher, and an able one at that.



GEORGE WATSON COREY, E. M.

Instructor in Mineralogy. B. S. 1893, E. M. 1896,
Michigan College of Mines.

A successful teacher who made good in practice but who turned again to the class-room for sheer love of the profession. A "big gun" in his line, but a "son-of-a-gun" in his ideas of the amount of work that is good for a student.



ROBERT CLAIR THOMPSON, M. S.

Assistant Professor in Chemistry. B. S. Westminster College, Pa., 1900. M. S. School of Mines, 1904.

A smooth voiced lecturer with a remarkable memory for dry and uninteresting facts, such as atomic weights, physical properties, etc. A crack tennis player and former track man, and is always interested in athletics. Keeps Prof. Bowen in condition by worrying him on the tennis courts.



JOSEPH HENRY BOWEN.

Assistant Professor of Shopwork and Drawing.
Graduate Miller School, Virginia.

Most remarkably gifted in the art of getting money from places where there seemingly is none. Has pretty sharp eyes, and those who try to pass in other men's work as their own had better be careful. His chief hobby is horse dealing. "That's pretty good, but you'd better make another one."



EDWARD STAPLES SMITH, M. E.

Instructor in Drawing. M. E. Brown University,
1904.

Professor Bowen's side-kicker. Is losing his beautiful curly hair teaching the Freshmen what a ruling pen is for. Hasn't got the "Make another one" habit yet, but is well started on the way. Is a good fellow, and wants to get married.



JAMES VANCE HOWE, B. S., C. E.

Instructor in Surveying. B. S. C. E. Virginia
University, 1903.

Savage, sarcastic, and severe in the class-room. Good fellow and a "live one" outside. His one great fault is making bad puns and springing stale jokes. Helps Dudley to make life miserable for Prof. Copeland. Belongs to the "younger set" on the Faculty, and has made good.



BOYD DUDLEY, Jr., B. S.

Instructor in Metallurgy. B. S. 1908. School of
Mines.

Only a boy, but is a regular Copeland II when it comes to giving a good, reasonable, and interesting lecture. "Dud" is all right.



HORACE THARP MANN, B. S.

Instructor in Metallurgy. B. S. 1908, School of Mines.

Tried mining in Arizona but couldn't stay away from dear old M. S. M. and the Assay Lab. Runs the Assay Laboratory three days a week and keeps busy taking Bromo's place during the rest of the time. Has been known to swear on extreme provocation.



DIBRELL PRYOR HYNES, B. S.

Instructor in Chemistry. B. S. 1908, School of Mines.

"Dib" hails from Arkansaw, and is even proud of it. In the teaching profession he is only a novice, but in securing results he is no amateur. Sympathetic nature, especially for the Rollamo Board, for he edited the first edition.





MISS JESSICA HELLER.

Miss Heller is not only Librarian, she is part of the Institution, having served it faithfully for many years longer than most of us can remember. She has had a personal acquaintance with every man who has attended school, and prides herself on being a grad—a member of the '02 Class.

Out of a chaotic pile of books she has evolved a thoroughly equipped and catalogued, up-to-date, technical library.

Her good humor, ability, and helpfulness have made her to be admired, respected, and appreciated by all except the delinquents upon whom she has levied fines. Is a great worry and help to the Rollamo staff.



MISS BERNICE HARRISON.

Always cheerful and considerate in spite of the fact that her heart has turned to China.

The Rollamo Board's best friend, as proved by her untiring help in the compilation of the book, not only of this, but of previous issues.

Her special mission is to protect the Metallurgy Department from ennui. The Metallurgy Department does its level best to reciprocate, but even Miss Harrison can't help looking bored occasionally.

She is the Director's right hand "man," and is a bureau of general information. Added to these many duties she keeps Mr. De La Vergne from doing bodily harm to Bob and others who take issue with him.





J. C. Parrish

C. B. Faris

P. E. Burton

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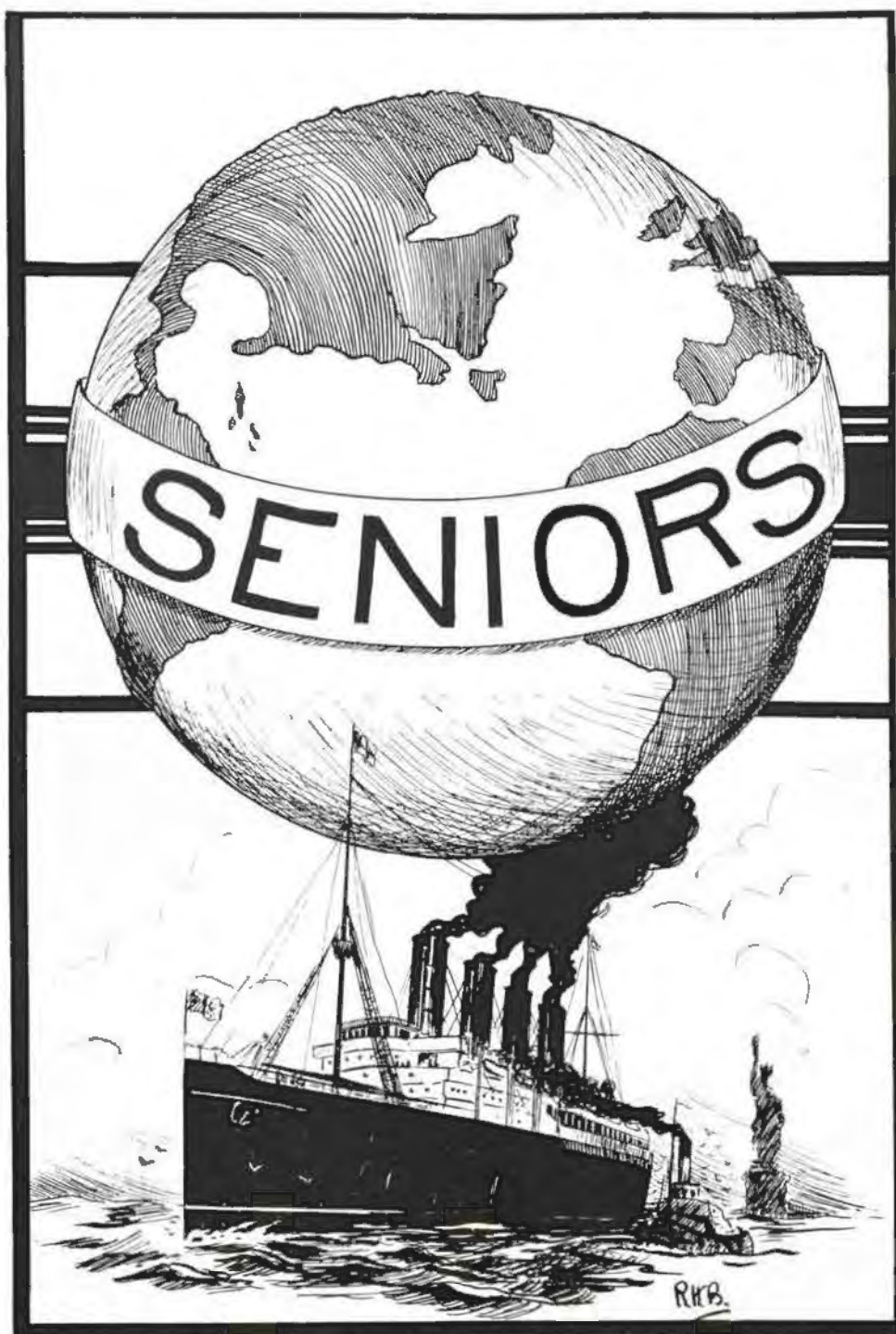
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H. GEORGE SYLVESTER ANDERSON,
K A, TBTT,

Kearney, Neb.

*"Brace up! Be not disheartened,
I still like you!" the maiden said;
"Though you have bright blue eyes
And hair of deepest red."*

B. S. School of Mines, Dec., 1908. Assistant in Assaying, 1906-'07-'08. President Tau Beta Pi, '07-'08. Vice-President Freshman Class '05-'06. 'Varsity Baseball Team '07-'08. Entered 1905.

This gentleman is generally known as "Red," but is seldom called such to his face, especially by small men. Andy has many good traits, one of which is self-reliance, which, as Emerson says, is the basis of good manners. Andy needs no guardian, unless it is when he is in love. Proud to have been a member of the Class of 1908½.

WILLIAM ALBERT BAUERIS,
K A, TBTT,

Chicago, Ill.

*"He hath a heart as sound as a bell, and his
tongue the clapper; for what his heart thinks,
his tongue speaks."*

Assistant in Surveying '07 to '09, Manager Baseball Team '07, 'Varsity Baseball Team '07, Rollamo Board '08. Entered 1905.

Feels it his duty to conceal his happiness by assuming a grouch at times, but it is only when he is really happy that the grouch is assumed. Was Assistant in Surveying for some time, not because he needed the money, but because he thought that the Sophs needed the instruction. Has an anti-pathy to small things; bugs, beetles, and Freshmen.

JOHN W. BEARD, TBTT,

Syracuse, N. Y.

C. E. Syracuse University. Entered M. S. M. '08.

"Whiskers." A great Civil Engineer with a never-satiated desire to fuss. Loves the kindergarten girls. Too long at College. Insists on talking bad Spanish. Is a very hard worker, and, next to a Rolla beef-steak he is the hardest thing to beat this side of the Red Sea. Is a good fellow in spite of his faults.



FRED BOYER, ONE,

St. Louis, Mo.

"Could I love less, I should be happier."

Central High School, St. Louis. Entered M. S. M.
1904, Track Team 1906-8, Manager 1909.

Wants it to be distinctly understood that he had nothing to do with the various Great Ice Cream Robberies that have startled the neighborhood. Neither was he in any way connected with the abstraction of Volume 36. Ordinarily known as Boogher, and is first lieutenant to Clay Gregory. Falls in love periodically, and these attacks are generally followed by periods of almost complete sanity.

REGINALD H. B. BUTLER, TBII,

South Woodford, Essex, England.

"England! With all thy faults I love thee still!"

Yorkshire College, Leeds, Colorado School of Mines.
Entered M. S. M. 1905. Editor-in-Chief
1909 Rollamo.

"My Lord" has introduced himself to us by his caustic wit and his skill as a cartoonist. He sure does know how to handle a pencil. Resolutely refused to become a member of the "Furrin Club," as he is neither an American nor a foreigner. Is essentially English, and has a rooted aversion to American clothes, especially "peg-tops." Ambles around the globe, and crosses the Ocean on trifling causes. Takes care of Lynton when the latter is in love.

ERNST LORENZE CHAMBERLAIN, TBII,

Rolla, Mo.

*"Full many a flower is born to blush unseen
And waste its sweetness on the desert air."*

A Phelps County cornfield sailor. Tall, dignified and serene, "Timberline" glides gracefully (?) in and out of the classrooms. Like all worthy sons, Timberline is following in the footsteps of his father, and henceforth will be seen carrying a transit across his shoulder. His great desire is to invent an instrument by which he can make a survey of Mars, but is at present satisfied to appear cheerful and look with admiration on Prof. Harris.



WILLIAM DANELS CLARK, ΣN, ΤΒΠ,
Rolla, Mo.

*"For thy sake, Tobacco, I would do
Anything but die."*

Rolla High School. Entered M. S. M. 1905.
Treas. Athletic Assn., 1908-09.

Born and raised in Rolla and loves the country so well that he would fain leave this rural spot. Known for his pleasant disposition, and will even smile at his rivals. Expects to be Consulting Engineer for Watson & Co. or John Hayes Hammond—hasn't decided which.

WILLIAM NEWTON CLARK, ΔΤΔ,
Jewell City, Kansas.

*"So daring and so bold
A dead shot with Cupid's arrow;
He, with his gentle soul,
Would not harm a sparrow."*

Baker University. Entered M. S. M. '07. Hellenic Club. "Grubstaker."

Willie has the will but will he? Aspires to be a chorus girl in "The Tenderfoot." Often rumored that he would start a sorority at M. S. M. Has fitful tendencies to matrimony, but, as far as we know, is not married yet. Now's your chance, girls! On his arrival here at once entered exclusive circles of society, but has since deserted them for the Society of Most Tender Age and Extreme Wealth. The pride of Kansas.

J. CRAWFORD COMPTON, ΣN,
Independence, Mo.

*"Be calm in arguing; for fierceness
makes error a fault, and truth discourtesy."*

1909 Rollamo Board.

Ordinarily silent and reserved, he needs the stimulus of opposition to make him express himself. A man of keen perception and of blunt outspoken nature. A thorough "plugger" in his first two years, but has recently developed into the most persistent fusser in School. Dotes on Geology and has recently been known to take notes thereon. Made his reputation as Coach of the Ladies' Basketball Team.



WALTER DOBBINS,

Champaign, Ill.

"A horse! A horse! My kingdom for a horse!"

Entered M. S. M. 05. Grubstaker.

"Hoss," "Hawrse," "Horse and wagon," etc., etc. A very gentle animal if properly treated, although he is somewhat addicted to making night hideous on Grubstaker Hill. Frequently attends School and at times deals in second-hand clothes. The Grubstaker Side-show Politician, and aspires to follow in the footsteps of Croker, Tweed and others. Assaying "shark," and Prof. Copeland's joy. He's a good old hoss all the same, for there are few men that have his good-natured disposition.

D. F. DON,

Rock Island, Ill.

"Plain truth . . . needs no flowers of speech."

Assistant in Mineralogy '08-'09. Class President '06. Rollamo Board '08. Grubstaker.

Don has asked us not to print any of his faults, because he wants to give his girl a "Rollamo." He can shut his eyes and tell you the composition of any rock under the sun. Is not called "Red," because by the time this book is out he will be bald, and people would not understand why he was so named. Don is sure a "Comical Cuss" but he is a gentleman even if he is a Grubstaker.

BENJAMIN HARRISON DOSENBACH,

KΣ,

St. Louis, Mo.

*"The folks who say that love is blind
Most certainly are right;
I've fallen in, and now I find
That love is out of sight"*

'Varsity Base-ball Team '07-'08. M. S. M. Minstrel Troupe.

A roly-poly Dutch lad. So small that he supports his name with difficulty. Entered the course in General Girl-ology, but is now specializing in one department in that subject. So fastidious in his dress that you would never suspect that he once wore wooden shoes. Reads Thermo for a pastime. Smiling eyes, happy disposition, and a heart as large as his name.



THEODORE SAUNDERS DUNN, ΠΚΑ,

Waukegan, Ill.

*"I'd rather have fingers than toes,
I'd rather have eyes than a nose,
I'd rather have hair," etc.—Old Song.*

Lake Forest College. Entered M. S. M. '06. Rollamo Board 1909.

Pete has had varied experience as Reporter, Draftsman, Engineer, Lady Killer, etc. Never tires of relating thrilling adventures at Lake Forest. Plenty of nerve, but has an indisposition to work, hence switched to the Geology Option, and got stung. His redeeming feature has yet to be discovered.

GEORGE ALBERT EASLEY, Κ Α, ΤΒΠ,

Lee's Summit, Mo.

"But, by the Lord, lads, I'm glad you have the money!"

Business Manager 1909 Rollamo, Business Manager 1909 Minstrel Troupe, President Tau Beta Pi '08-'09, Track Team '03-'04, Treasurer '07 Class.

Warrensburg State Normal.

An untiring and energetic worker at anything in which he is interested, and is still "all there" in spite of the great financial schemes with which he is associated. Will probably travel a great deal if he can't resist the temptation of financing moving picture shows in Alaska and Patagonia. A natural born farmer, and is fond of talking "hogs." One year a country school master. Reputation rests on his ability to manage, make announcements, and agitate. Has figured out that a student's grade varies inversely as the square of the distance he seats himself from the Professor.

VICTORIANO ELICAÑO,

Masinloc, Zambales, P. I.

"Still waters run deep."

Iowa State College. Entered M. S. M. '06.

Member of the Cosmopolitan Club. Elicano is characterized by being a good student, good fellow, "good Phillipino." Noted for attending strictly to his own business and for his reasoning powers.



HARVEY ODEN GARST, TBT,

Cabool, Mo.

*"Let me be no Assistant for a State,
But keep a farm and pasture great."*

President of Senior Class. Assistant in Surveying.

This is the only living example of this unique species. "H. O. G." has done nothing very startling during his four years' residence, but has pursued the even tenor of his way, absorbing some little Civil Engineering and many of Leming's stale jokes. Is very badly in love at the present time, and may be married by the time that this book is printed. Walks as though he were stirring lemonade with himself.

WILLIAM S. HALL, ΣN,

Pleasanton, Kansas.

*"Suit the action to the word and
the word to the action."*

President of Freshman Class, '05, '06, Stage Manager
M. S. M. Minstrel Troupe. Business
Manager, 1908 Rollamo.

Bill has led a rather chequered career since entering the school four years ago, and has dabbled a little in everything from politics to love. Bill was president of the Freshman Class during his first year, and we doubt if Bill Taft will be able to run his cabinet any better than Bill did his class. His love affairs, of course, are not for publication. His many duties have caused his hair to wear away, so that he now wears it "pompadour" in order to make a little go a long way. We shall miss Bill at the close of the school year.

ALEXIS XAVIER ILLINSKI, KA, TBT,

Rolla, Mo.

*"The prime of manhood, daring,
bold, and venturesome."*

'Varsity Baseball Team, '97, 'Varsity Football
Team, '97, '07.

Doc's time has come at last. He is now such an old timer that the boys regard him as a bench mark. Has an ancient, paternal manner and is at all times capable of giving good advice. Haunts the Geological Survey headquarters in company with Vic Hughes, and is supposed to be a very busy man. Has a benevolent aspect which is in keeping with his patriarchal manner.



SIMON JOCHAMOWITZ,

Lima, Peru.

*"And when a lady's in the case
You know all other things give place."*

Escuela de Ingenieros de Lima, '07, Michigan College of Mines, '08. Entered M. S. M. '08.
Member M. S. M. Orchestra.

"Jo-ham-sandwich," "Jo-ham-and-eggs." No one has ever been able to tell just how handsome this young Peruvian really is, because he always obscures himself behind a cloud of cheap perfume. From an occasional glimpse that one gets of him one cannot help feeling that he really ought to hide behind something. Jo is one of the great fussers, and, judging from the number of girls who have been seen wearing his diamond ring this winter, he must have been engaged to a different girl every week. All the same he is a great artist.

CARL WINTHROP KENISTON, TBT,

Plymouth, N. H.

*"Come! Sit down every mother's son of
you and rehearse your parts."*

Assistant in Chemistry, '07, '08. Assistant in Metallurgy '08, '09. Director of M. S. M. Orchestra and Band. Director M. S. M. Minstrel Troupe. Grubstaker.

A Yankee and pretends to be proud of it. Father of M. S. M. Orchestra. Talks mysteriously about "Back East" (wherever that is). Fond of blowing his own trumpet (and everyone helps him). When Time is no more there is likely to be a conflict between him and Gabriel, as to who shall blow the last trump.

HARRY CLAY KIBE, TTKA,

Socorro, N. M.

*"I am determined every chance to take
To acquire knowledge, though I make a
break."*

A Mellin's food baby, but only eats to live and ask fool questions. Thinks that Phelps County hills abound with undiscovered mineral. At any rate he makes the poor Rubes think so. Resembles a duck in his walk. Gets ocean transport free, being shipped as ballast. Is taking the Geology Option, as he finds much difficulty in getting down mine shafts. Would like to enter Society but can't give up chewing tobacco.



HAMMOND LADD,

Rolla, Mo.

*"Behold the child, by Nature's kindly law;
Pleased with a rattle, tickled with a straw."*

"Happy" is the children's friend, and is a regular "Diamond Dick" to the Rolla kids, who buzz round him like flies round a bad egg. Resembles a tape-worm in appearance, owing to his extraordinary length. Is sometimes called "Beanpole" for the same reason. Combines childish play and extraordinary scholarship in a remarkable degree, and, although he is the baby of his class in years, he is a never-ceasing wonder for his ability to do good work without any study. Goes to school at times. Is an artistic photographer, as proven by his many excellent illustrations in this book.

PAUL BAUCHMANN LEMING, K A,

Cape Girardeau, Mo.

*"Don't be afraid! He won't hurt you,
He wouldn't even hurt a hair;
All he wants is an electric toy,
And a pretty little Teddy bear."*

Cape Girardeau State Normal. Entered M. S. M.
1906.

Paul's sole redeeming feature is his ability to tell stale jokes. Otherwise he is considered quite hopeless, notwithstanding the fact that a few far-sighted individuals predict that he will some day fill a pulpit. Is much given to oratory, and his stentorian tones can often be heard swaying the Civil Engineering Class. Will marry within a month after leaving College, and will then return to the swamps to further the study of his pet scheme, "The Drainage of Swamp Lands."

ELMER COOPER LIST,

Cape Girardeau, Mo.

*"He has never had a fight,
And has never joined a riot;
You may hunt the wide World o'er,
And you'll not find one so quiet."*

Cape Girardeau State Normal. Entered M. S. M.,
'06. Member M. S. M. Orchestra.

Another inhabitant of the swamps and is reported to have webbed feet. Tall, dignified, and of stately mien. Why he still remains in this vale of tears is a mystery to all his friends. Would look exceedingly well in saintly robes, but would have to substitute his heavenly harp for a drum, which he plays with great expression, and almost brings the tears to one's eyes. Never was known to talk to anyone but his landlady, who thinks him "the nicest boy!"



FRANK R. LOVERIDGE,

Batavia, N. Y.

*"She's all my fancy painted her.
She's lovely, she's divine."*

Track Teams, '06, '08. Grubstaker.

If Rolla were a wheat field "Lovie" would be the "cream of wheat." When not in the class-room he can always be found in the Post-Office. Can supply full information on "Management of a Pitchfork in the Kansas Harvest Fields" if Mazany is not around.

MARK STEPHEN MAZANY,

Dunkirk, N. Y.

*"If thou desire to be held wise, be wise
enough to hold thy tongue."*

Colgate University. 'Varsity Basket-ball Team, '07, '08. 'Varsity Track Team, '08. Entered M. S. M. '07. Grubstaker.

"Colgate," otherwise "Slats," is reported to have been good looking in the days of his youth. Apparently, however, the Mathematics, Athletics, and Politics at M. S. M. have proven fatal. Improves his time by talking of Colgate University and how he played football there. Is Mohammedan chaplain to the Grubstakers, and occasionally puts in an hour or two trying to train "Horse Dobbins." It is a case of the blind leading the blind.

ROWE FRANCIS McCRAE, K A,

Rolla, Mo.

*"Holiday don't go away,
But stay with me forever."*

Assistant in Surveying '07, '08. Manager 'Varsity Baseball, 1909. Captain Class Baseball, '06. 'Varsity Baseball, '07, '08. Member M. S. M. Band, M. S. M. Minstrel Troupe.

His athletic figure and handsome face never fails to melt the stony hearts of the Rolla girls. Consequently we expect that "Bus" will marry an heiress some day. Life's labors do not trouble him, as he is taking the General Science Course.



PEARL FREDERICK MICHAEL,

Rolla, Mo.

"My thoughts are my own companions."

Pearl rooms with "Piggy" Garst, so that we have— ipso facto—the casting of pearls before swine. In spite of this he is a good fellow, although a very quiet one. Is addicted to making week-end excursions into the country and always comes back a happy man. From which we deduce—

FRANK XAVIER NACHTMANN,

KΣ, TBT,

Junction City, Kansas.

*"Night after night he sat
And bleared his eyes with books."*

'Varsity Football Team, '07. M. S. M. Minstrel Troupe. '09 Rollamo Board.

Please note the "Xavier!" Does not properly appreciate evening serenades, though he has been known to commit such crimes himself. Has been heard to state that "Frame" was an interesting subject, and that Kansas is the best State in the Union!!!! Generally present when there is any fun in the air. Is almost distinguished looking—hence the middle name. Hides abundant good nature beneath a gruff and solemn exterior. Fusses only intermittently.

NORMAN L. OHNSORG,

Rolla, Mo.

*"The deed I intend is great,
But what, as yet I know not."*

Class Track and Basket-ball Teams, '07.

He asked the Rollamo Board "individually and collectively" to cut out all roasts on himself. It was pretty hard work for the Rollamo Board whilst it lasted, but it's done at last. That's all.



ARTHUR LEWIS POLLARD, BØΠ, TBTΠ,
Batavia, N. Y.

*"You are wise, or else you love not,
For to be wise and love, exceeds man's
might."*

Editor-in-Chief, '08 Rollamo.

Our dear old "Art" is a hard worker, hard thinker, and hard lover, and we prophesy that in years to come he will occupy a top rung on the ladder of life. At least "Chief" with those feet of his is sure to leave his footprints in the sands of Time. Addicted to falling in love with the Kindergarten girls. Slow of speech and has the germs of a roving nature at work within his heart.

AARON M. SHAH,
Vilna, Russia.

*"There shall be done a deed of dreadful
note."*

Member of the Cosmopolitan Club. Entered 1905.

A man of murderous looking aspect. Once tried to be an Anarchist and still has hopes of succeeding. Studies the chemistry of explosives very assiduously, and one day intends to go back to Russia and show them how. Is a very hard worker, and never intrudes himself into other people's affairs, which is a great virtue.

RALPH WILLIAM WATSON, Σ N,
Salt Lake City, Utah.

*"Oh! that such gloom could dwell in such a
gorgeous palace!"*

The handsomest man in school, and is fond of his nickname, although he is really quite cheerful, especially when the ladies are around. Is quite proud of his grey hairs, which he maintains have been caused by hard work. "Gloomy" is undoubtedly a world-famous mining engineer in the embryonic state, although he can't tell a stalagmite from a telegraph pole. Has great faith in sleep as a cure for all ills.



EARL McCULLOCH SMITH,

Little Rock, Ark.

"The eyes of man are of no use without the observing power."

M. S. M. Minstrel Troupe.

Earl has distinguished himself by almost being as much of a "Boston Tech" nuisance as Keniston, the chief difference being that Earl comes from Arkansas, which accounts for many of his eccentricities. Cuts his hair twice a year, and shaves under provocation. Would like to teach the Faculty a thing or two, but so far has found them indisposed to learn. Has a gift of being able to talk for a long time about things of which he knows nothing. "Now, I'll tell you—"

EDGAR JOSEPH WOLF,

Mt. Vernon, Ind.

"The mould of a man's fortune is in his own hands."

M. S. M. Minstrel Troupe. Entered '05.

"Mose" is a good Indian and has always participated in all College activities, class games, minstrel shows, etc. Known to have the best memory of any man in School and once knew his Freshman Chemistry according to page number. Generally gets on all the exempt lists, if not, he always gets his revenge by continually walking up and confidentially asking the Prof. a lot of fool questions. The last of the Seniors—but not the least.



Earl Smith

History of the Senior Class



"Say, 'member how we came into this burg, and let them Sophs herd us around the campus, and how we chased ourselves up and down dark streets and otherwise acted like a bunch of crazy muts?"

Well. It was some fun, wasn't it, to get old Ironsides to spielin' just what a lot he'd do, and to see Don and Andy and Gardner and Dobbins, all arguin' and nobody doin' a thing.

Recollect how we went up agin them Freshmen subjects, English, Algebra, and a few others worse'n any Greek we ever heard of? And say bo'! Didn't we have sport in them Chem lectures—not! Prof. Thompson talkin' like a machine, and us a tryin' to take down every blamed word he said. An' Prof. Bowen makin' you "do another one" until you thought he must have a market for his little blocks and be about sold out short, or layin' in a supply to speculate on futures knowin' he had a corner on the little block market.

But say, guy! There was some fun besides! The scrap up by the back stop, when we all got dabbed up with paint, but cleaned up the Sophs. That day there was a wreck down the track, and the time Bill Baueris and Bill Hall celebrated the Chem exempt list, and the big midnight doin's down by the Frisco Pond! That year went quick and there wasn't no foolin' 'bout the time the end of the year came 'round.

Most of us got jobs that summer vacation and we showed up in September, flush and husky. Some of the guys had dropped out and there were a few new ones. Old "Langy" came in that year, and remember how he took us out and trained us in the way of handling a color rush? How he yelled "Cawcuss!" and the acrobatic turn he trained Bill Peeso to do on the backs of the flying wedge that never did fly? On the square tho', we did have some athletes, Dave Olin and Eddie Elliott; you couldn't get two better men than them fellows. Remember how old Ed used to heap up a little pile of dirt under the goal and claim that he was the original "wampus cat?"

Our school work got deeper and harder. Prof. Dean entered as a very vigorous reminder that we had to work to stay, and he did much to relieve the monotony of every-day classes. He sure was huffed when pore old "Calculus" got painted, and suffered from painter's colic in consequence.

It was a good live year, and even the mix-up over the "investigation" straightened out, and left us no "sore heads" after it was over.

We came back for the third year. Little we realized the dread hours before us, hours when we could neither sleep nor stay awake. Full of hope we entered the Junior Geology Class, but hope died. Then there was Mechanics. No trouble to stay awake here, oh no! Mechanics is the sire of insomnia and is the very symbol of sleepless nights and painful days. But all things come to an end. Then came St. Patrick—with all the decorations of his office. We did the patron Saint of Engineering great honor, and afterwards, according to our wont adjourned to the cut to do him more honor.

At the end of the Junior Year the bunch "hiked" for Flat River. Here we inspected mines and mills and studied geology for a few weeks, and when the rest went away a few of the others stayed to work in the mills. The others went home to prepare for the last lap.

Most of the men returned last fall for the Senior year, when we found that the play was ended and we got busy working off conditions, straightening up our back work, and plodding along in the Senior work.

Life is beginning to look big to us now. We have stood the first test, so that, as far as we know, our prospects are good. Who knows what Life has in store for us?

The time is drawing to a close now—it is the beginning of the end. Very soon Rolla will be only a memory, and there will be no Professors to help us—we must be our own Professors. But whatever we “stack up against” we will do our best; we can do no more than that. Probably we shall occasionally meet some of our old school friends; for after all, even if the world is round, it is very small. And then—“Well! Have you heard anything from Rolla?”



Seen on a wet day.
Prof Bowen watching a likely piece of horseflesh.



The Summit and the Dawn



D. C. JACKLING, B. S., '92

Mr. D. C. Jackling is a man of whom M. S. M. has a right to be truly proud. Not necessarily because of his achievements—these speak for themselves—but because of his interest in his old school.

It is thanks to Mr. Jackling that the first Rollamo ever found its feet, and again this year any success we may obtain will be largely due to his generous help and interest.

Mr. Jackling has made his mark in the world, but, in the hour of his success has never forgotten his Alma Mater. Would that more of those that graduate from here had some of his spirit!

Moreover, remembering that he was once a struggling student himself, he is always ready to lend a helping hand to those of us who are honestly trying to follow our profession. If any of us ever reach the eminence that he has attained, let us remember, and take a lesson from Mr. Jackling.

The Past and the Future

(Mr. Duncan is one of the first Graduating Class, 1874.—Ed.)

x



MR. G. A. DUNCAN

The thoughts of the writer go back to the starting point of The Missouri School of Mines and Metallurgy when the upper floor of the public school building provided more room than was required by the half dozen raw boys Dr. Williams and the faculty had as material upon which to commence. Most of the students came from local families, and were drawn into the school membership by the persuasive and kindly personality of Professor Williams, to whom many of us owe unflinching gratitude for that first determined effort of his in our behalf, as well as for his constant interest in our advancement and his efficient help throughout the school course.

Among those first students, Gill came in daily by rail from his home, ten miles away on the Piney River. Pack drove in from his father's farm

six miles out from Rolla; Hare, the athlete of the class, walked his four miles, and the writer came ten miles on horse-back. Later, six of us formed a "club," and I suppose that was, in its appointments and expenditure, the most modest club of school record. We had three rooms and a kitchen—annex on the floor above what was then "The Morris Hardware Store." We had a negro boy for cook. The front room was the study, where the rules as to silence were strictly, if sometimes roughly, enforced.

A large room back of the study was fitted with a fire-place, and served as bed room. The waking in that room will always remain a clear memory to me. Sam would stumble in with an armful of wood, kneel in front of the fire-place, and get his kindling by breaking the sticks over the top of his head, singing the while every morning the same cheerful melody "Gettin' ready to die, O Israel," and when I now reflect upon the quality of Sam's cooking, I accord deeper respect to his sense of humor than was then given him. Sam's song started the day, however, and we arose and ate what he gave us, having for consolation the knowledge that our total expenses were but three dollars per week per man.

Some good workers and useful men grew out of that first class. A. W. Hare was an able metallurgical chemist, in Aspen, Colorado, and died only a few months ago. W. C. Minger is efficient in the same profession in Reno, Nevada. John Holt Gill, mentally the best equipped man in the class, died in Washington, after two years of most creditable service in the United States Engineering Department. Peter E. Blow, after ably conducting the affairs of the Granby Mining and Smelting Co., in Joplin, Missouri, settled in Knoxville, Tennessee. James Pack is the chemist and assayer of authority in Boise, Idaho; while his brother, John W. Pack, has become standard authority on the refining of bullion, and is the man who stays, through all administrations, in the United States Mint, in San Francisco. W. S. Duncan, after some years of efficient work as manager of ore sampling works, went into the ranch and cattle business in

Colorado. His present address is Denver. Otto B. Amsden occupies an enviable position among mining engineers, notwithstanding the fact that he failed to secure his degree because of the necessity for his leaving school near the close of his course to accompany his father to Colorado. Amsden crossed the plains with his own teams, and upon arriving in Colorado became a U. S. Deputy Mineral Surveyor, opened an assay office, and, covering a wide field of experience, progressed through all the details of mining engineering and mine management to his present thoroughness and efficiency. Amsden is a mining engineer, although lacking the conferred degree.

We were room-mates at college, and have been closely associated since. I can look out of my office door eastward over the Colorado river six miles away, and see, among the Arizona mountains, a certain peak, eighteen miles distant, from which come occasionally bright flashes of reflected sunlight; then I know that Amsden is signaling, and I get to work with my heliograph. It produces quite a neighborly feeling to know that Amsden is over there, so near a companion in the desert, opening up the Gold Bug Mine. His address is Chloride, Arizona.

The first graduating class, that of 1874, consisted of J. H. Gill, J. W. Pack, and myself, and we determined upon an immediate and effective attack upon the Rocky Mountains. The mountains are still here, waiting for the rest of you. We arrived in Denver on July 3rd, on a very slow Kansas Pacific train, the trip having been made interesting by the herds of buffalo and antelope, then abundant on the plains.

We soon secured work at a small smelter that was being built at Boulder, Colorado. We had a room in the smelter building, and worked twelve-hour shifts. One evening, shortly after our engagement at the smelter, the writer was seated astride a plank which was laid across the head race, his trousers rolled to the knees, his feet in the water, engaged in a scientific manipulation of his weekly washing. Pack, seated on a boulder near by, was placing a much needed button on his overalls, and Gill was writing to his girl; interrupting himself occasionally to make humorous remarks personal to Pack and myself. Presently he laid aside his writing, and very seriously called us to order in "The First Meeting of the Alumni of The Missouri School of Mines and Metallurgy."

Some years later, when The American Institute of Mining Engineers held its annual meeting in Denver, and Professor Emerson was present as toastmaster, I attended, at the Windsor Hotel in Denver, an alumni meeting and banquet at sixteen dollars per plate; a very, very enjoyable function, but Gill had gone then, something of the early glamour had passed, and my mind more often goes back to that first meeting on the bank of Boulder Creek, when the sun was going down behind "the range," and shadows of mountain peaks were moving out upon the plains.

While thinking of your suggestion that I give a word of advice to the graduating class, I glanced at my shelves which support many pounds of the copies of five weekly mining and metallurgical publications. Your school library contains them all. They are full of information, most of it being of service, and they, with the earnest efforts and personal interest of your Professors, cover the field of advice to young mining engineers. More advice is not needed; but I wish I had the power to arouse you to a realization of the importance of your following the abundant good advice you now have.

Recently much has been written upon the ethics of mining engineering. The writer thinks that the matter should be considered in a broad and serious manner, and as of paramount importance, and that absolute integrity of service toward employer, the public and one's self will cover all ethical points, and clear the young man's pathway of many a pitfall and cause of failure. This may be trite, but it is most emphatically true.

Next to character, comes ability. The world still needs the young man who can do the thing that needs to be done.

When you get out in the field, and see going forward any work in your line with which you are not familiar, get busy right there, and learn exactly how it is done. Ask yourself the question, if it were up to me, could I do it? Some day you will need to know how to do just that thing. Remember that it is a trait of humanity to be pleased to impart information. Through the failure to question, cometh much lack of knowledge. If the inquirer starts with the frank statement that he does not know about this thing, and is anxious to learn, he will, almost always, meet the response he seeks.

About five years ago the writer happened to be in Colorado, and learned that our foot-ball team was to meet that of the Boulder University on Thanksgiving Day. That information located me for that day, nearly occasioned my being mobbed on the field, and did cause a subsequent temporary suspension of vocal activity and a call from the editor of "The Boulder News," who demanded to know why an old Boulder citizen should manifest such violent disloyalty to the home team. We did not win that game, to state the result mildly, but our failure to do so was one of those few defeats that could be considered by the vanquished without dismay, discouragement or humiliation, and nothing was demonstrated on that field that should have given to any of our men a feeling of physical or technical inferiority to the Boulder team collectively or individually. Our men trained near sea level, and then went a mile up in the air to play against lungs and hearts attuned to the rare atmosphere of that altitude. We had no chance of winning, and there was no disgrace in defeat.

Such defeats will come to you in your life work. To fail in performance of work that, through previous training and opportunity you should be able to do, is cause for alarm and distrust of your integrity of purpose; but to fail when, through no fault of your own you are at that time unequal to the task, must bring no fatal discouragement, nor admit any question as to your later ability to do great things. Keep that ultimate ever in mind. Aim high; believe in yourself, and then "make good."

The writer is not worried by what is often referred to as the overweening confidence of youth. Experience in the field will soon modify any such characteristic, if it exists.

I once had an engagement of fruitless research in a region of most perplexing conditions. I was a long distance from a base of supplies, and my boots were about all uppers. While in this rather serious plight, I found two well-worn burro shoes, and nailed them on the heels of my boots.

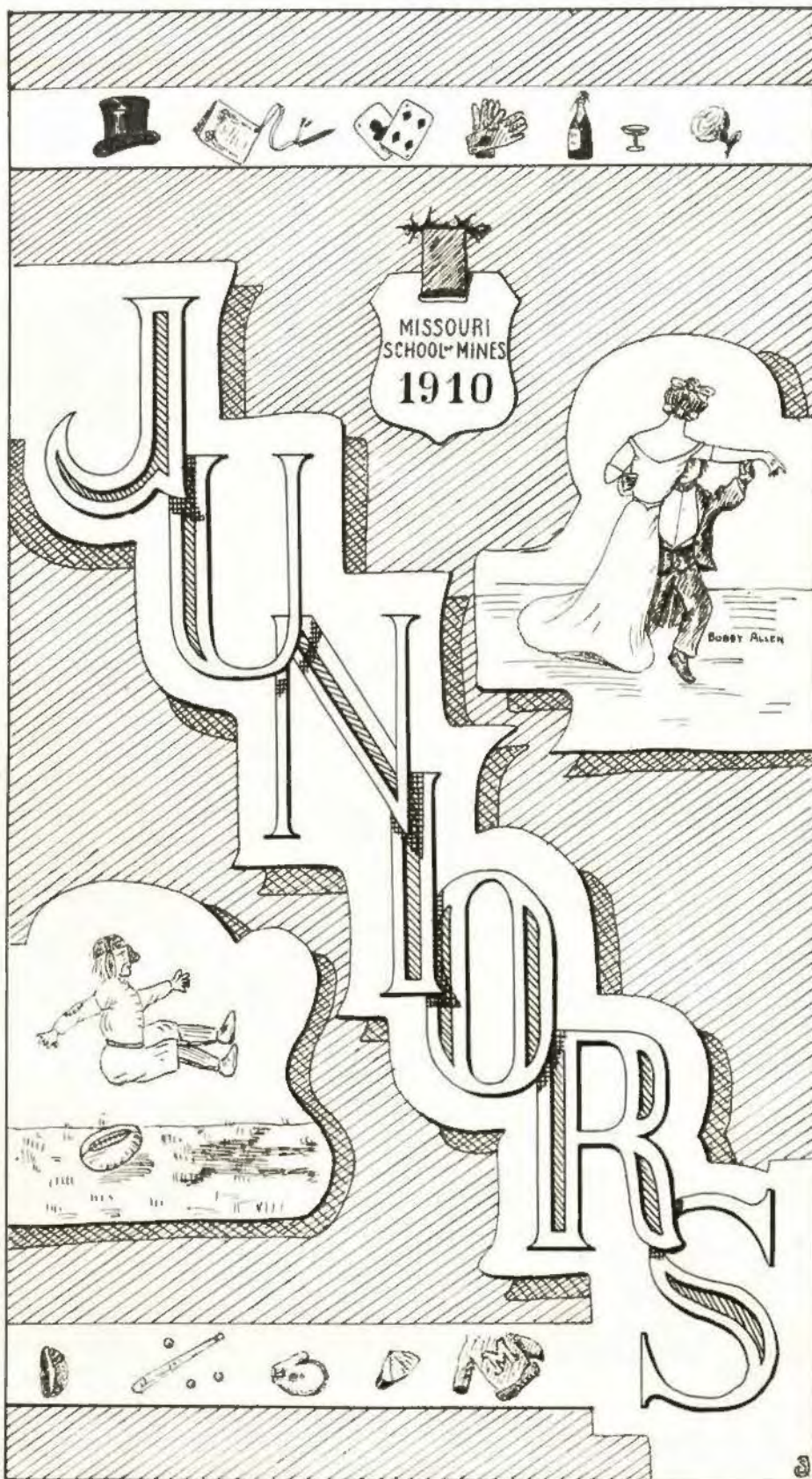
One day, while I was thinking of the fruitlessness of my work, and questioning the accuracy of previously formed conclusions, an old prospector stopped at my tent and told me that he had followed my trail two miles up the wash before he discovered that the shoe prints of a burro were made by the heels of a man going in the opposite direction to his course of search for his lost burro, and that it worried him, for a while, to tell whether a burro had gone up the wash, or a man had traveled in the opposite direction.

Guilty, as I was, of a feeling of the possibility of humorous suggestion in the premises, I looked pretty hard at that old fellow in effort to learn if he was arriving at the same estimate of my wanderings as was taking shape in my own mind.

We are all making those oft-mentioned "Footprints in the sands of time." Let us leave such trails behind us that those who strike them later shall have no doubt as to whether a man passed that way, going north, or a burro, going south.

G. A. DUNCAN,

Class of 1874.



History of the Junior Class



A. R. D. MORGAN, President

"Steer a straight course and let the other fellow do the dodging. You'll find the world willing to step aside for a fellow who knows where he is going."

That this was the motto of every man of the class of 1910, upon his arrival at Rolla, cannot be vouched for. It can be said, however, that it did not require such a great lapse of time until the university as well as the town realized that the 1910 class meant "to steer a straight course and let the other fellow do the dodging."

That we were Freshies once is a gospel fact, and all the verbosity, the greenness, the pomposity, that are part and parcel of a Freshman's make-up, were ours. We had our luggage carried up to the hotel by a porter, we inquired for the most direct car line to the college, we bought tickets for the steamboat rides upon the lake—yes, and we even went so far as to hunt "87" varieties of "snipe" that are so abundant in this section of the country.

But that was long ago. The fact is that we didn't do half as much as the others did to us. We had a goodly number of brave men—ninety strong in fact, but being unaccustomed to the city, we were an easy prey for the band of Sophs that continually jumped upon us from all corners. The most memorable evening was undoubtedly the one where we were all invited out to the cemetery, the invitation being in the form of a dozen strong hands laid upon our shoulders and a dozen strong paddles laid vigorously upon other quarters. We went and had a good time. Our oratory from that well chosen spot will long be remembered, as will the sights we saw from something like thirty feet above the topmost point of that hill. O! yes, we "steered a straight course" that night—sometimes "straight up" (the blanket) and sometimes "straight down" (the well), but at all times it was "straight." The remainder of the year was spent in getting acquainted. A sort of "metasomatic replacement process" was going on "after this general fashion"—our high school foolishness was being replaced by common sense. And it is not difficult to understand that such a transformation required time and numerous bumps. Upon one day in particular these "bumps" came thick and fast. That was the day when we placed our colors of gold and black upon the top of a telephone post and defied the Sophs to take them down. In all due respect to the Sophomores, they tried hard enough, poor fellows; but every man of 1910 stood by his post (telephone post) and the colors of gold and black waved defiantly over all. So much for our first year at M. S. M.

September of the following year found us "on the job" and ready to entertain the visitors who were destined to become the class of 1911. And they were joyously "entertained." Upon September 20, under the guardianship of "Chicken" Humphrey, they decided to make a city out of this burg of Rolla. O! they were a brave lot, to hear them talk. Well, "Chick" succeeded in "clucking" them up town as far as the Grant House and there they stood, trembling and shaking when the column of 1910 rounded the post-office corner, and, led by President Thornberry, "steered a straight course" for the Grant House. When we arrived one or two Freshmen were found snugly tucked under "Chicken's"

wings. The rest were gone and the woods were filled with Freshmen that night!

It is said upon good authority that the hotels at St. James and Newberg were crowded with strange fellows who jumped at every noise and trembled at every footstep. At first we were sorely puzzled with what to do with these fellows; they bothered the farmers with midnight appeals for lodging, and walked blocks out of their way to keep from speaking to any of the rest of us. To a class as hospitable and entertaining as the class of 1910 such actions were decidedly offensive, so it was decided to enthuse bravery and politeness into the heart of every child of 1911. They were caught (thanks to Farrar, our long distance runner) and tied in a long line. Poor fellows, the strain was too much, and we had to feed them milk from a bottle before their courage could be revived. Their president became so infatuated with the cute bottle with its rubber top that we had to let him carry it the remainder of the morning. As we looked at that line of Freshmen it was apparent to all present that if we were to associate with such, that something would have to be done to improve their general appearance. Green caps and nightgowns were decided upon—the nightgowns covering up the "green streak" and the caps matching nicely with the intellects which they were to cover. Under our careful treatment they became almost brave and finally decided to meet us upon the football field. We were pleased with this, as it repaid us in part for the pain we had taken in such development. They met us upon the day set and really put up a good game. They were defeated of course, but it was an interesting game and all came away in good humor. The next encounter with them was during the basket-ball season. Our modesty and discretion allowed us to divide honors with them, as it would not have done to bring too much humiliation into their midst.

This year we returned Juniors and with Mr. Morgan as our president have become a substantial factor in the life and success of the college.

Enough said about the deeds and character of our class. But let it be remembered that when athletic men were called for that our class responded liberally, that when the social life became a bit dull we were always on hand to entertain the fellows; that in the class room we lacked neither ability nor willingness. In fact, it can be said in all due modesty, that the class of 1910 have always "steered a straight course and let the other fellow do the dodging."

The mark of the M.S.M. man.



What four years of Rolla beef will do.

JOE BOWLES

JUNIORS.

Allen, Robert Sexton	Kansas City, Mo.
Andrews, Sanford William, Jr.	Arcadia, Mo.
Blake, Frank Orris, Jr.	St. Louis, Mo.
Blaylock, Daniel Webster	Flat River, Mo.
Bodman, John Whittlesay	Kansas City, Mo.
Boland, Earl Frederick	Syracuse, N. Y.
Bowles, James Joseph	Lake Springs, Mo.
Branham, William Grover	Joplin, Mo.
Bunten, James	Canon City, Colo.
Burdick, Charles Adrian	Dansville, N. Y.
Callaway, Scott David	Nevada, Mo.
Caples, Russel Bigelow	Glasgow, Mo.
Clark, John Charles	Chicago, Ill.
Connelly, Harry Wade	Independence, Kans.
Detweiler, Alfred Nicks	Lebanon, Mo.
Detweiler, Milan Harrison	Lebanon, Mo.
Diaz, Emilio	Santiago, Chili.
Dobbins, Walter	Urbana, Ill.
Dosenbach, Benjamin Harrison	St. Louis, Mo.
Farrar, Monroe	Mattoon, Ill.
Forman, John Kavenaugh	McFall, Mo.
Fraser, Keith Colt	Lyndonville, N. Y.
Gray, Howard Dean	Wausem, Ohio.
Gregory, Clay, Jr.	Joplin, Mo.
Haataja, Charles Leo	Helsingfors, Finland.
Harlan, John Dee	Moberly, Mo.
Harrison, Walter Edward	Salem, Mo.
Holmes, Oliver Wendell	Rolla, Mo.
Jobes, Charles Taylor	Kansas City, Mo.
Karte, Anton Frederick	De Soto, Mo.
Killian, Ralph Daniel	Perryville, Mo.
List, Elmer	Cape Girardeau, Mo.
McNutt, Vachel Harry	Monroe City, Mo.
Mackey, Robert William	Waukegan, Ill.
Miller, Christian R., Jr.	Sedalia, Mo.
Minor, Harmon Edwin	Canon City, Colo.
Morgan, Allen Ray Dearborn	Rolla, Mo.
Murphy, Benton Franklin	Bonne Terre, Mo.
Park, Albert	Rolla, Mo.
Peterson, Howard Kelsey	New Rochelle, N. Y.
Pickering, John Lyle, Jr.	Springfield, Ill.
Pierce, Colwell Arba	Kansas City, Mo.
Porri, Louis Joseph	St. Louis, Mo.
Porth, Harry William	Kansas City, Mo.
Riede, Fred Edward	Canon City, Mo.
Schmidt, Sidney Randolph	Chicago, Ill.
Schultz, John Elmer	Topeka, Kans.
Shaw, Albert Henry	St. Louis, Mo.
Smith, Duncan Slater	Rockford, Ill.
Smith, Harvey Edson	St. Louis, Mo.
Smith, Van Hoose	Little Rock, Ark.
Stewart, John Sloane, Jr.	Mansfield, Ohio.
Thompson, Reuben Conrad	Sioux Falls, S. D.
Thornberry, Martin Harmon	Rolla, Mo.
Traugher, Charles Weaver	Centralia, Mo.
Twyman, George Thomas, Jr.	Independence, Mo.
Vogt, George C.	Davenport, Ia.
Welsh, Harold Llewellyn	Kansas City, Mo.



M



Afternoons

Bolivia as a Possible Field for American Engineers

x

Mining in Bolivia may be said to be yet in its infancy, although mines were opened and worked by the Spaniards in the 16th Century, some of which have been operated continuously for over two centuries, and are still in operation. The present methods employed in all except the larger properties show little advance over the crude and primitive methods of the Spaniards.

Most of the large properties are owned and operated by Chilian capital, and I know of no instance where a competent engineer is placed in charge of the work, this position being usually given to some particular friend or relative of the owners who has no technical training whatever. As a result the work is done without system and the methods are wasteful in the extreme. An accurate plan of underground workings is almost unheard of, as well as a systematic development or blocking out of ore reserves. The system of "gophering" prevails almost universally.

Milling is also, in a way, conducted along the same lines, and although the larger mills have adequate machinery to do good work, the lack of a trained man in charge makes the losses in concentration excessive. The cheapness and abundance of labor is also in a measure responsible for the crude methods used, many of even the larger mills dispensing with automatic feeders, elevators, etc., having this work done by hand.

The fact that under such conditions the properties are paying large dividends and increasing the output yearly, speaks well for the richness and continuity of the ore deposits. Indeed, Bolivia may be said to be Nature's store-house, so large and rich are the deposits and so varied their minerals, including as they do those of Copper, Tin, Iron, Nickel, Cobalt, Lead, Antimony and Bismuth. Gold and Silver are also widely distributed, and from some of these placers were derived the fabulous wealth of the Incas.

The present limited means of transportation has seriously handicapped the development of the country, but the competition of the railroads now proposed or in the course of construction, together with the completion of the Panama Canal will go far towards developing the great natural resources of the country and place Bolivia among the foremost mining centers of the world.

American capital has already begun to recognize the opportunities afforded, and the demand for American Engineers is increasing in like proportion, so with the development of the country we may expect a steady and increasing demand for trained engineers.

GEORGE W. DEAN,

School of Mines, B. S. '97—E. M. 1900.





Norwood Hall



SUPHOMRES



History of the Sophomore Class



S. C. MACOMBER, President

The history of the class of 1911 properly begins with the night of September 16, 1907, for on that night we came forth from our many hiding places and held a meeting under the bridge which crosses the Frisco railroad track. With Swenson as our leader and "Chicken" Humphrey as our chaperon we marched forth, sixteen strong, charging upon a flock of Sophomores, who promptly put us all to flight. Although we accomplished nothing that night we have since proved to our upper classmen that there exists a class of 1911, and throughout the school year both the town and school have often been reminded of the fact.

During the next few weeks we received some very rough treatment from the upper classmen, but we fought bravely and only took what was forced upon us. Did we take it all like meek little children? We sure did not, for many an upper classman was hurriedly dragged from his bed at night to submit to the wrath of our class.

When it came to athletics we did more than was expected of us. We gave the Sophomores the football game, feeling it our duty to do so; for it would have completely ruined them if we had not. We also showed our generosity when it came to basket-ball, when we divided honors with them. But when it came to track we felt that we could no longer give up to them—even if they were a year older—and so we took only what belonged to us, "the honors in track."

We came back this year with a feeling of increased security and marched bravely up and down the streets with our hands thrust deep into the pockets of our new corduroys, feeling that we had then lost much of the verdancy that we had possessed a year ago.

We then began to look about for a leader of our true and trusty band of 1911. This time we did not meet under the bridge, but by the broad light of day, in Norwood Hall, where we elected our class officers.

Macomber was chosen for president by unanimous vote. The next man to be chosen was our manager of finances, the choice falling on Chase for this office. Suddenly our meeting was interrupted by our sentry bringing into our midst Mr. Sherlock Holmes McNair, the would-be "Freshman detective," who was caught red-handed trying to discover our innermost secrets. For a few moments there was talk of immediate execution, but on account of his youth and ignorance he was pardoned. But from that day to this his hair persists in standing on end.

The election was then closed, after a few plans had been made for the disposal and benefit of the Freshmen. With Macomber as our leader, Chase as our manager of finance, and Stroup as recorder of events, we felt like an organized band. The next thing was to put the verdant Freshman through a system of hazing experiments that would have done your heart good to see. With the advantage of our education of the previous year, and our own originality, we put them through performances that they will long remember and which will be of material assistance to them when they come to handle next year's Freshies.

You will read on other pages of this book how we marched them around the town, adorning them with red paint and suitable costumes. You also will read how we showed our good fellowship by giving a smoker in their honor.

When our younger brother, the Freshman, wanted us to play football with him we accepted, because we thought the children needed some amusement. When we lined up against them our superiority made us feel ashamed. Fortunately our generous spirit came to the rescue, and we broke even with them. Of course, they felt very highly honored, and perhaps they had a right to feel that way.

As a class, the class of 1911 has always done the part that has proved its loyalty to the school. When the call came for football men we responded with all our giants. Also we feel not a little proud that we have furnished the only man that has been able to make the all-State team since the history of the school began. In basket-ball, track, and baseball, our output has been equally large, and many are the points that we have scored for the school in each. Not only do we boast of athletes and good fellows, but we claim as many good students as you will find in any class. Obviously we feel very much satisfied with ourselves and the school.



CHRISTMAS.

Pete Abbott goes home in his private car as usual

SOPHOMORES.

Abbott, Edward Rees	Mansfield, Ohio.
Abernathy, George Elmer	Willow Springs, Mo.
Adams, Henry Farnum	Prescott, Ariz.
Albertson, Maurice Merton	Aurora, Mo.
Allen, Ernest James	Forrest, Ill.
Beach, James Keller	Kansas City, Mo.
Bingham, Raymond Alexander	Watertown, Mass.
Blake, True Walter	Maywood, Ill.
Boza, Hector	Lima, Peru.
Bradt, Albert Leonard	St. Louis, Mo.
Chase, James Howard	Logansport, Ind.
Coaske, Paul E	St. Louis, Mo.
Cody, Benjamin Horace	St. Joseph, Mo.
Coover, Louie Lincoln	Springfield, Mo.
Copeland, Robert Nathaniel	Chelsea, Mass.
Elmore, Carlos	Lima, Peru.
Engelmann, Edward William	St. Louis, Mo.
Fey, Don Frederick	Burlington, Ia.
Flynn, Frank James	St. Joseph, Mo.
Ford, Horald Percy	St. Joseph, Mo.
Forrester, David Lawton	Oakland, Cal.
Garcia, Herman	Mexico City, Mexico.
Gosrow, Ralfe Cleveland	Buffalo, N. Y.
Grosberg, Alex	St. Louis, Mo.
Groves, Frank W	Des Moines, Ia.
Harris, Deane Dwight	Rolla, Mo.
Holm, William M.	Chicago, Ill.
Jones, Howard Hiltz	Kansas City, Mo.
Kenney, John R.	Chicago, Ill.
Kline, Duane Montgomery	Rolla, Mo.
Kurtz, Adolph	St. Louis, Mo.
Lamadrid, John Manuel	Sancti Spiritus, Cuba.
Lunak, Otto Allen	St. Louis, Mo.
McColloms, Max Reed	Newton, Ia.
McElherne, James Charles	Rock Island, Ill.
Macomber, Sumner Cooley	Des Moines, Ia.
Mann, Frank Clark	Springfield, Mo.
Mitchell, Robert Bruce	Walker, Mo.
Nachtman, Ralph	Junction City, Kans.
Nason, Stanley Lewis	West Haven, Conn.
Ormsby, Robert Graham, Jr	Kansas City, Mo.
Overstreet, Chester Zearl	Indianapolis, Ind.
Pudewa, Arthur Gustav	Chicago, Ill.
Raj, Shio	Lahore, India.
Randolph, Oscar Alan	Kansas City, Mo.
Scoates, Richard	South Milwaukee, Wis.
Stroup, Thomas Andrew	Lewistown, Mo.
Tedrow, Harvey T	St. Joseph, Mo.
Townsend, Frank Edgar	Belgrade, Mo.
Williams, Conway Guild	Jackson, Mo.
Wolf, Harold M.	Mt. Vernon, Ind.



Celebrities

R.H.B.

A page from Butler's Geology Notes.



The Smelter at Cerro de Pasco

A Few Words of Advice to Students and Young Graduates

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Apply yourselves diligently to all the studies in your course, whether you like them or not. Your Professors and Board of Directors know, better than you, what particular branches are necessary to fit you for your chosen profession.

When a young man leaves school to make a start, he cannot choose his own place; in most cases he will take what he can get and make the most of it, and the better he is fitted in different branches, the more opportunities are open to him. I may cite my own experience as an example. When attending the M. S. M. it was my ambition to be a mining engineer. Chemistry was one of the requirements in the mining course, and although not a favorite study of mine, I tried to learn as much about it as I could. As the first position I was able to get, on starting out, was in a laboratory, which was the opening to a metallurgical position later on, which might not have been attained in any other way, I was very thankful that the E. M. course at the M. S. M. had chemistry requirements.

Your first position may be a very subordinate one, but no matter what it is, devote your whole time and energy to it and do it so much more effectively than someone else did before you that your superiors cannot help but notice it. Nothing dissatisfies an employer so much with a man as to see him lounging around at his work or dreaming about something else. Do not be too anxious for an increase in pay; if you make your work to justify it, someone will see that you get it without your asking for it every six months.

Always be in an attitude to learn from all with whom you come in contact, whether above or below you. No man with years of practical experience in any kind of work is so ignorant but that you can learn something from him. Keep up with the modern literature bearing on your profession.

As an employer, choose your men carefully. Your success does not depend on yourself as much as it does on the men working for you. Insist on your orders being carried out in a general way; do not try to dictate every detail, because men accustomed to certain kinds of work know better ways of doing it than you. Do not quarrel with the men with whom you are associated; it wastes too much good time. If you cannot get along with the man for whom you are working without quarreling or arguing, you had better quit and look for another job. If you cannot get satisfactory work from a man who is work-

ing for you without quarreling or disputing with him, get someone else for his place and you will never regret the change.

Give every one in your employ a "square deal." Give more credit for merit than for personal friendship, but do not overlook the fact that loyalty to you and the company for whom you are working goes a long way. If you have a "knocker" in your employ—I do not need to advise a remedy—you will know what to do.

SAMUEL I. GORMLY

SAMUEL J. GORMLY,

Class of 1895.



Jan 5. Jobs gets held up.



And all he had was a bunch of Keys!

W. Rowland Cox



W. Rowland Cox, at the age of thirteen, began his business career as weigh-master for the Grand View Mining & Smelting Company at Rico, and from that time until he was twenty-one was constantly employed in various capacities around the mines, mills and smelters of Rico and Aspen, Colorado, the latter being his place of residence from 1887 to 1903. The years 1892 to 1896, inclusive, were spent in attending the Denver University, at Denver, Colorado, and the Missouri School of Mines, at Rolla, Missouri. During vacations was always employed in or around the mines at Aspen. After leaving Rolla in the third year of his work, he was employed until 1903 in various capacities from miner and mill man to superintendent of mines and mills by the Mollie Gibson Consolidated Mining & Milling Company and the Argentum-Juniata Mining Company, of Aspen; also during

this period he conducted a series of tests to determine the efficiency of steam coals mined in Colorado and Utah, and assisted in designing two of the largest electric power plants in Colorado, besides making examinations of mining and milling properties in several western states and territories and the Republic of Mexico. In 1903 he accepted a position with the Guggenheim Exploration Co. as manager of the Silver Lake mines and mills at Silverton, Colorado. He remained there three years, when he was transferred to the position of Assistant General Superintendent of the American Smelters Securities Company's and Guggenheim Exploration Company's mines in Mexico, with headquarters at Aguascalientes, Aguas., Mexico. While in Mexico he had entire control of the following properties, employing in the aggregate about fifteen thousand men: Esperanza Mining Company, El Oro, Mexico; Velardeña Mining & Smelting Co., Velardena, Dgo.; Minas Dolores y Anexas, Matehuala, S. L. P.; Minas Tecolotes y Anexas, Santa Barbara, Chihuahua; Minas Jibosa y Anexas, Jimenez, Chihuahua; Minas Zaragoza y Anexas, Monterrey, N. L.; Minas Veta Grande y Anexas, Minas Neuvas, Chihuahua; and Minas Bonanza y Anexas, Bonanza, Zacatecas. Resigned his position in Mexico early in 1907 and his resignation was accepted, to take effect in December of that year. On his return to the States he resided for a few months in Denver and later in New York City, where he is now acting in a consulting capacity for various interests in the United States and Mexico, and is associated with Mr. J. E. Spurr in the firm of Spurr & Cox (Inc.). Is a member of American Institute Mining Engineers, charter member of Mining and Metallurgical Society of America, member Denver Club, Denver, Colorado, and Rocky Mountain Club, New York City. Business address: 165 Broadway, New York City.

FRESHMEN.



"Freshmen, like babies and puppies, have all their troubles before them."

History of the Freshman Class



H. D. McKIBBEN, President

The life of a "Freshie" during his first term is anything but a bed of roses; in fact, the first month of his college career is distinctly a little Hell-en.

On arriving at the great metropolis of Rolla, the verdant Freshman's heart beats like the chugging of a diamond drill. He has a haunting idea that the upper classmen are "laying for him" around each and every corner, so that in his soul there comes a wild desire to 'phone for one of the mighty Faculty as an escort—a thing which one of our particularly nervous Freshmen actually did do.

This feeling of fear is generally superseded by a "swelled head," which is occasionally added to by the flattery of fraternities and the melliferous voices of his fellow classmen. This feeling of pre-eminence predominates the moss-covered "think-works" of the ivy-green Freshman for a couple of weeks and is occasionally added to by the favors which are bestowed upon

him by the older "Frat" men, who may see in him a desirable acquisition. In this case, pride goeth before a fall, for the gentle Freshie is given all sorts of treats, his opinion is for once deferred to, and in general he is showed the time of his life. It is then that he writes home, telling his parents that his advent to the university is a great event for that institution.

The first class meeting was held on a dark and cloudy night beneath the dry spots of the railway water tank, where we assembled about twenty-five of the faithful and started out to round up lonely Sophomores. Several were dragged from their rooms and after a slight fight were overpowered and bound. That night was a night of joy to the hilarious Freshmen, but for a week afterwards Freshmen were scarce after sundown, and even then several of them were to be seen trying to swim across the campus under cover of night.

Not long afterwards a meeting was held in the Mechanical Hall, where the officers were elected and the class divided into two squadrons. Plans were immediately made to resist the Sophomores, and a poster-committee appointed. The Sophs' terrifying, war-like, "kid-crushing" poster was posted, to which we replied with "a poster without words" and which prominently decorated the town. That week Sophomores and Freshmen alike had little of the "feather bed feeling," for the hazing was at its height and many of the verdant ones rode blankets, visiting starwards. The melodrama of the poster affair ended in a burlesque when "Red" Forrester made a very thorough investigation of the bucket of flour and glue.

Our Waterloo, however, occurred on the morning of October 12th on the campus. The forces of the Freshmen class, having camped the night before in a little schoolhouse two miles east of town, marched in a body to the front of Norwood Hall and drew up their line of battle with their backs to the wall. It was either victory or death; but they got the lemon. For, with the aid of the upper classmen, the Sophomores soon tied the resisting Freshmen neck to neck in a long, long line. After a ceremonious adorning with pyjamas and a slight touch of artist's talent on fancy socks and loud mouths, with the finest brand of

Mound City paint, the Sophomores led their humbled captives through the town for the eyes of Rolla's fair sex to gaze upon. After which, the Freshmen having been made to adorn themselves with the regulation "green postage stamps," were set free, to give them a chance of ridding themselves of some of their high colors. The Sophomore "smoker" that night made every man forget his pains and long-suffering and throw off all restraint and suspicion.

About two weeks later the Freshman Smoker again brought the entire school together in united friendship. Of this affair the Freshmen feel justly proud, because they feel that they have distinguished themselves in the manner that they repaid social debts.

Besides these smokers the class of 1912 deserve credit in athletics. They tied the Sophomores in football, which has never been done before in our college history. They have also added three or four men to the 'varsity football, basketball, and baseball squads. In cross-country running also they are not without distinction, for be it remembered that it was a "club-footed" Freshman that won the college five-mile race. At any rate, the Freshmen have not been a discredit to their school and they are to be more admired than scorned. The Freshman class have by now slightly diminished their self pre-eminence and hope finally to cast off the rest of their kiddish chlorosis ere long and reach the dignity of manhood like most of the upper classmen.



Feb 1st Freshman Snipe-hunt.



Red Forrester investigates the Freshmen's paste.

Green Cap Day

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Thirty husky Sophomores and forty-five valiant Freshmen, after three weeks spent in threats and ominous growls, mixed in the annual "Green Cap Scrap" on the campus on the morning of October twelfth. It was certainly a relief for both sides when the conflict was actually on, for the week previous to the 12th was a nerve-racking experience for both classmen. A Sophomore in the day time attempted to hide his real qualms of fear by a weakly assumed air of bravado, whilst the Freshmen went to bed at night trembling at every noise that was wafted up to their bedrooms, for fear that the hated classmen of the year ahead had spied out their rooming places and were come to seek vengeance. Sophomores called at the college library for "Hearts Courageous," in the vain hope that it might give them some inkling of how to meet the situation, while "I'm Afraid to Go Home in the Dark" was played and sung by every man of 1912 who could make a noise; and those who couldn't do that made signs. It might be added that the signs did not need any translation.

A few ante-scrap raids were made by both sides. Guerilla parties hauled several of the Freshmen from their rooms and ran them through their paces, such as a visit to the Frisco aquarium, east of town, but beyond spoiling a little of the bedroom furniture (which was done from the strictly humanitarian standpoint of aiding a few Rolla merchants in sales of household goods), the damage was *nil*. A few of the Freshmen became active in retaliating, but for the most part, by a very cleverly arranged plan under which the Freshmen paraded the alleys and the Sophomores the streets during the evenings, conflicts on a large scale (notwithstanding the many advertisements to the contrary) were avoided until just prior to the fated day of October twelfth.

On the Monday of the week previous to the twelfth, the posting of printed handbills in glaring red letters detailed the schedule of etiquette for the Freshmen as outlined by the Sophomores. Becomingly at the head was the word "Danger" and then a descriptive piece of the supposedly typical Freshman followed, and in the main part of the text they were told, among other things, that they should neither wear ties, nor corduroys, nor could they cut across the campus, but should remain on the sidewalks and respectfully take off their hats to all upper classmen.

The Freshmen got busy and held a class meeting. Then ten of the leading lights scampered away by themselves and had a poster designed. Carrying paste buckets and brushes they attempted to post high their printed defiance to the Sophs, but Friday was truly unlucky, for the bills that were put up were immediately torn down by watchful representatives of 1911. "Red" Forrester, of 1911, who was scouting with considerable success, came to grief. Snatching a bundle of posters from a surprised Freshman, he let out a war-whoop for his followers, who answered with a yell; but alas, for "Red!" The man with the paste bucket grasped the situation (as well as the bucket) and hurled the contents of the bucket on the valiant Soph, literally "pasting" him. The Freshman ran away on the basis of that old truism of Napoleon (wasn't it?) that, "He who pastes and hikes away may live to paste another day."

To cut it short, the Freshmen tried again on Saturday night, and on Sunday morning as the Sophomores walked down the street the grinning picture of an impudent Freshman greeted him from sidewalk and electric light pole.

Plans to tie up the Freshmen Saturday night failed, for the latter had "hid out." Supper tables at the boarding clubs were deserted by the Freshies who had anticipated a night spent tied up in the woods by taking to the woods themselves. A few scattering men had been bound up Friday evening and this served as a strong hint of what might befall. Most of Sunday evening spent roving about eliciting nothing and the Sophs went to bed to await Monday morning.



Green Cap Day

The Freshies spent the evening at a school house two miles east of Rolla. A guard was stationed around the school house to apprise the main body if the enemy should appear. The guard was very vigilant and kept seeing so many different things and calling out warnings that none of the body of classmen got any sleep.

Then the day! At 7:30 A. M. the Freshmen were found on the campus of Norwood Hall yelling defiance. About ten minutes later the Sophomores met them with a rush that certainly was "the real thing." In the flash of an eye both bodies of men were at it. Heels went up in the air and heads struck the ground with a racking thud. Freshman was piled on Sophomore and Sophomore on Freshman. Then the Juniors and Seniors took part, tying the protesting Freshmen hand and foot until within forty minutes of time as many of the pride of 1912 were lying about "down and out." Macomber's attack had won the day.

Then, with long and short segments of rope, the captured were tied in line. A little excitement was aroused when an occasional Freshman would break loose and dig out like a rabbit across the campus with some of the upper classmen hot at his heels. The pursuit usually ended with the return of the pursued, then blankets were brought out and the luckless Freshman was given a toss, including even Jimmy Long, POSTGRADUATE, whose aerial trip came as a reward for having attempted to set free one of the men on the rope-line. Then with the preliminaries over, the march down town began, McKibben, president of the class of 1912, leading the line and hapless Long bringing up the rear. Forrester (who dotes on red) had his favorite color in the form of paint and streaked the men on the wienerwurst-line on hose and face until the forty-five men looked like an animated fire-cracker. Tin cans dangled merrily at the rear of the line as they marched down Main street. The posters of 1912, which occupied conspicuous places on the buildings, were obliterated by the red paint with a brush forced into the hands of unwilling McKibben. Then came the third degree. The rope line was hauled across from the postoffice and the Freshies lined up to acknowledge defeat and accept the wearing of the green caps. A daub of paint or a resounding whack with a stick calmed down some of the more obstreperous and then "Smiling Mac," the pride of 1912, announced in loud language that the investment of 50c per, for a green cap would be made by each of his long retinue. With cheers for Freshies and Sophs, a rush was made to unbind the men and each of the 1912 supporters was escorted to a Green Cap store and the fight was over.

The Green Cap Scrap of 1908 was past and a memory of a gallant fight unmarred by any untoward incident.



A Winter Night on the Campus



The Freshman Smoker

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The formal debut of the Freshman into school society was marked by the Class Smoker in the Chemistry Building on the evening of October 23rd. This was the first time in the school year that the new chaps had had a good opportunity of making the acquaintance of the old chaps. It also marked a test of the skill of the new class in the role of hosts.

Too much cannot be said in commendation of the manner in which the Smoker was handled. Plenty of "smokes," huge basketfuls of grub, with choice cider for the thirsty, were there in plenty. These things placed everyone in a thoroughly amiable mood, which was soon further added to by the good evening's programme of interesting sports.

No "claw-hammers" or gallantly bedecked receiving line awaited you stiffly at the door to give you a clammy hand; the fellows just dropped in and said "Howdy." Over on one table was a large array of corncob pipes and tobacco for the bowl, to which everyone helped themselves. Lights were struck and the aromatic odor of tobacco filled the chemistry room, routing out the cheerful fumes of HCl and HNO_3 . Over at another end of the room was a bar which typified frontier conditions. Hayes, Durkee and Bowers acted in the capacity of barkeepers with a skill that awoke both admiration and envy.

Soon the orchestra "chuned" up and chairs were cleared away for dancing. Following this came the sport events, commencing with a wrestling match between McNair and Houseknecht, both Freshmen. The decision went to McNair. John Bowles and Durkee then tried conclusions on the mat. It was a pretty contest, Bowles taking two out of the three. Bilderbach and Johnson, two Freshmen, were then announced as principals of a wrestling event, Johnson coming out on top. Science against brawn vied with each other in the cane-



Mr. "Bar-keep" Hayes

wrestling contest, with science winning, as McNair was given position over Bland. Joe Bowles, Junior, and High, a Freshman, next threshed about on the mat, High losing on falls to Bowles. Macomber had no trouble in disposing of McKibben in the next wrestling event.

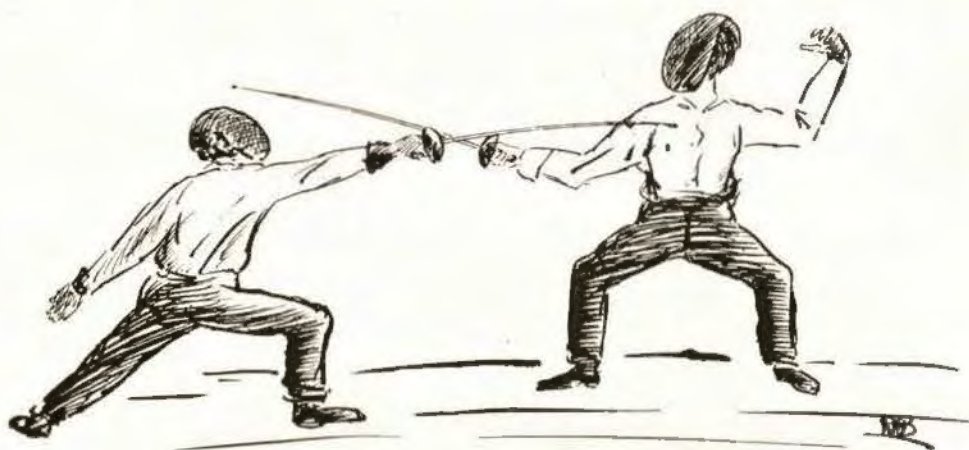
A change to music then came, when Elmore effectively sang several Spanish songs to guitar accompaniments, the crowd insisting on several encores. Prof. Forrester, 1911, was then announced for a buck and wing dancing exhibition, which was certainly received appreciatively.

Next came a pretty fencing contest between Lynton and Butler. The fine points of the fencing were not thoroughly understood, but it was appreciated nevertheless.

Then the pie-eating contest. The old champions, Dobbins and Wolf, declined to enter the contest; but Blake, Siegmund, Harrison and Wemhaner made a pretty good exhibition of themselves.

After this several men entered bearing baskets filled with things to eat and other men bearing cups of steaming coffee. Effete cigars were put by and the corncob pipes hastily discarded.

Then someone brushed the crumbs from his lap and said "Let's go," which at once started the crowd home through the pouring rain. The lights were turned out and the Freshman Smoker was at an end.



FRESHMEN.

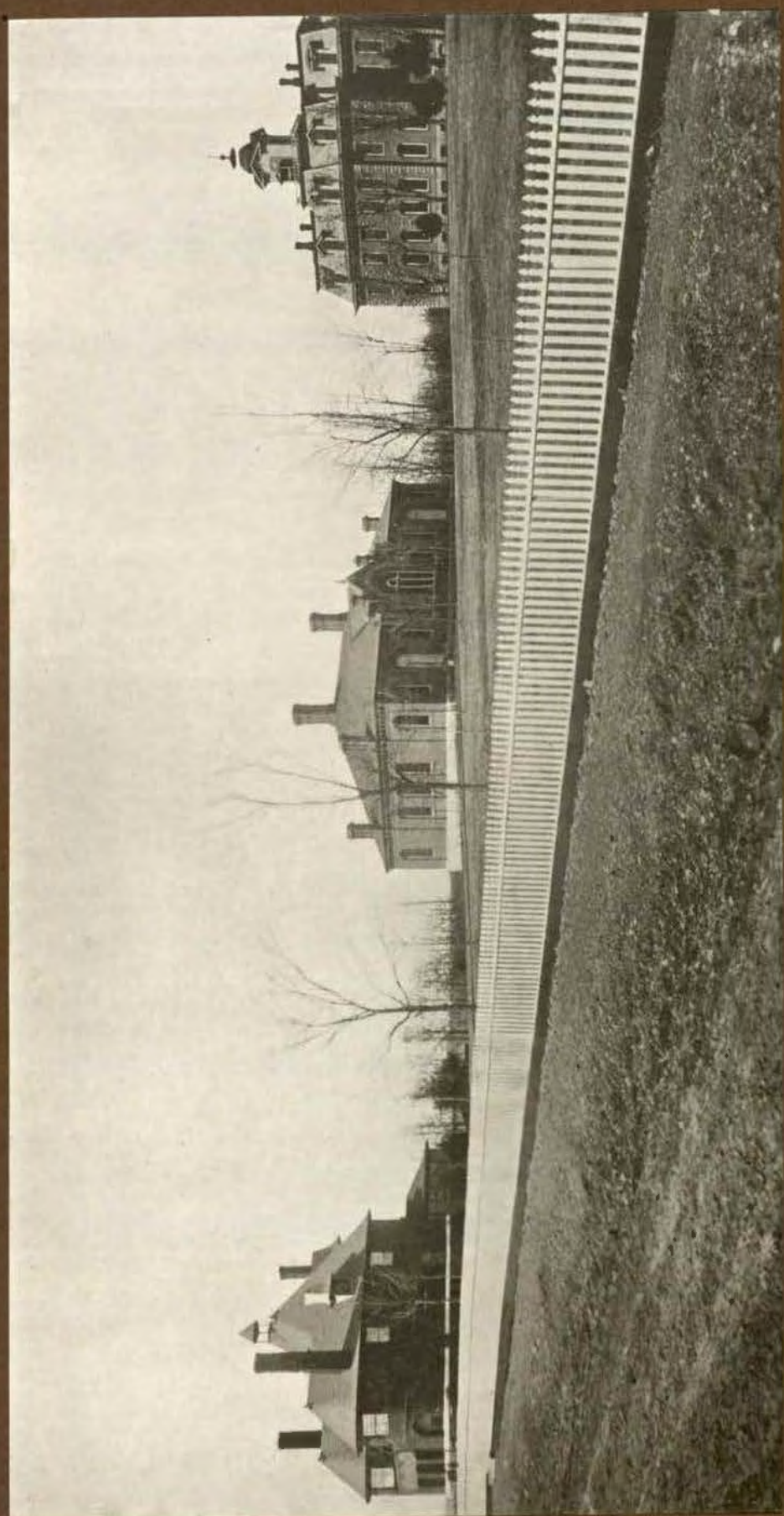
Bilderback, Alexander Scott	Kansas City, Mo.
Blake, Harold	St. Louis, Mo.
Bland, John Lilburn	Lebanon, Mo.
Bower, Albert	Mattoon, Ill.
Bowles, Rupert	Durant, Okla.
Bribach, Oscar Nicholas	St. Louis, Mo.
Broughton, Eugene Harding	Jefferson City, Mo.
Castillon, Tirso	Torreon, Mexico.
Conover, Cairy C.	Carrollton, Mo.
Cronk, Arthur Harrison	Omaha, Nebr.
Cushwa, Claude C.	Independence, Mo.
Deacon, Arthur P.	Webster Groves, Mo.
Diaz, Washington Theodore	Santiago, Chili.
Dunkin, John Haskell	Guthrie, Okla.
Durkee, J. B.	Kansas City, Mo.
Elbelt, William	St. Joseph, Mo.
Farrell, Oliver	St. Louis, Mo.
Gray, Walter Berry	Louisiana, Mo.
Greensweight, Robert	Rolla, Mo.
Hackwood, Arthur Willesley	Baxter Springs, Kans.
Hayes, Dale Irwin	Rock Island, Ill.
High, H. H.	Faulkner, Kans.
Hollister, Scoville E.	Princeton, Mo.
Houseknecht, Seward Forward	Batavia, N. Y.
Irwin, Joseph Stewart	Louisiana, Mo.
Johnston, Mead	Okmulgee, Okla.
Kerr, Andre Joseph	St. Louis, Mo.
Kinney, Robert Noel	Rolla, Mo.
Kranzthor, Fred Otto	Eagle Pass, Texas.
Leavitt, James Blaine	Washington, D. C.
Lynton, Edward	Ipswich, England.
Lyons, Clyde Francis	Springfield, Mo.
McFadden, Edwin Cook	Chicago, Ill.
McKibben, Harold Dennis	Kansas City, Mo.
McNair, Stuart Strathy	New York, N. Y.
Meeker, S. Ezra	Pekin, Ill.
Michelsen, Thomas Henry, Jr.	Hobart, Ind.
Morris, Edwin Robinson	Jefferson City, Mo.
Myers, Warren Prescott	Prescott, Ariz.
Naylor, Arch Waugh	Marshall, Mo.
Newton, Lloyd Charles	Gurdon, Ark.
Parent, George Lee	Marshall, Mo.
Plessner, Albert	Holden, Mo.
Porri, William	St. Louis, Mo.
Porter, Jerome	Hannibal, Mo.
Purcell, Robert Crofts	St. Louis, Mo.
Rachal, Frank C.	Falfurris, Texas.
Radcliffe, Donald Hewson	St. Louis, Mo.
Raible, Norman William	Hannibal, Mo.
Robinson, Eugene Charles	Independence, Mo.
Royden, Frank Applegate	Edgewood, Ia.
Runnels, Ralph Willard	Kansas City, Mo.
Schilling, George William	Freeport, Ill.
Schmich, Matt	Freeport, Ill.
Shaw, Harry	St. Louis, Mo.
Shaw, Thomas Edward	West Haven, Conn.
Sherry, Homer Kent	Lyndon, Kans.
Smith, Marshall Raymond	Rolla, Mo.
Smith, William Bryce	Baxter Springs, Kans.
Stephenson, William Pittman	Nevada, Mo.
Strong, Arthur Leon	Lyons, Mich.
Sudhoff, Ralph William	Richmond, Ind.
Thomas, George Sylvester	Chicago, Ill.
Trenkel, Willie Max	Rolla, Mo.
Tway, Robert Raymond	Springfield, Mo.

Ustick, Edward Thomas	St. Louis, Mo.
Vanderhof, Ralph Scovell	Vandalia, Ill.
Wafer, J. Oscar	Greenville, Ill.
Wemhaner, Oscar Christopher	Warsaw, Ill.
Wright, Oscar Conway	St. Louis, Mo.
Yelton, Erastus	Rolla, Mo.

SPECIALS.

Chowning, James W	St. Louis, Mo.
Fort, Albert Sidney	Rolla, Mo.
Hanes, James Edward	Wheeling, W. Va.
Hauber, Ben	Springfield, Mo.
Heydecker, Coral T.	Waukegan, Ill.
Johneese, Frank	Greenfield, Ill.
Jones, William Hamilton	St. Louis, Mo.
Martin, Harry H.	Fredericktown, Mo.
Owen, Harvey Skidmore	St. Louis, Mo.
Siegmund, Walter Finney	St. Louis, Mo.
Wright, Clark Watson	St. Louis, Mo.
Zimmerman, George Henry	Romney, W. Va.





Missouri State School of Mines in 1891



The pity of it!

Modern Cyaniding



The art of Cyanidation must be of great interest to the young Mining Engineer or Metallurgist, since this process has made such wonderful advancement in the last few years, and today is such an important factor in the extraction and recovery of the precious metals.

The field for the application of this process has broadened so considerably in the last few years, due to many improvements in the method of applying same, that very low grade ores, as well as what was previously considered "waste" can now be treated at a profit.

The profitable treatment of dumps of waste rock, all over the world, is ample proof of this point.

The successful application of the Cyanide Process to the treatment of both high and low grade silver ores, as well as to concentrates, is indeed interesting, and for this class of material it has been found that strong cyanide solutions are required, longer treatment time given, and a large amount of solution used in relation to the amount of ore treated. Besides this, the judicious use of lead acetate, mercuric chloride, or litharge, is to be advised, in the cyanide solution.

The most notable improvements accomplished in the application of this process, to gold and silver ores, can be enumerated as follows:

- (A) Crushing in Cyanide Solution in Stamp Batteries.
- (B) Fine-grinding in Solution in Tube Mills or Pans.
- (C) Mechanical Agitation and Aeration.
- (D) Separation of enriched solution and water washes, from the finely ground ore pulp.
- (E) Precipitation of the precious metals from enriched solutions.

Thinking it might be of interest, I shall run over these improvements more in detail, in the above order.

(A) By applying the solution to the ore, in the process of crushing, the time-factor is greatly benefited, thus reducing the initial first cost of plant. In other words, by utilizing the time taken for the reduction of ore-size, for the dissolution of the gold and silver contents, by crushing in solution, just so much less time will be required for treatment afterwards in the tanks; thus saving in tank capacity, and therefore in this way reducing the first cost of the plant.

In actual practice, from 40 to 80% of the total extraction takes place in the crushing of the ore, and the finer grinding of the pulp.

To make this point a little clearer, it should be stated that under the old method, extraction did not commence until the crushed ore had reached the tanks, whilst in the newer scheme of crushing in solution, extraction starts as soon as the ore is delivered to stamps or other style of crushing machinery employed.

(B) It has been found that in many cases the finer the material treated the higher the extraction, everything else being equal, and that is accountable to the extreme fineness of the gold and silver particles present.

The encasing rock must be ground to such a degree of fineness that the particles of metals are liberated, thus allowing the solution to act upon them.

From this fact the "all-sliming" process originated. This scheme consists in the sliming or fine grinding the "whole-ore," in solution usually. It will be seen that this process does entirely away with the formation of "sands," and the obviating of the well-known percolation methods, both single and double treatment.

In practice, practically all of the sand is reduced to about 200-mesh size, and the whole-ore is treated as a slime, as above pointed out; but whether it is of advantage to mix the clayey portion of the ore with the fine reground sand, will have to be determined by actual experiment.

It is interesting to bring to your attention the most modern and economical method of "all-sliming" an ore.

The mine-crushing is done in some of the well-known types of rock breakers, and usually reduces the ore to two-thirds inch size.

This material is fed into the stamp batteries by automatic feeders.

The stamps are gradually being made heavier, and it is common practice to install stamps weighing as much as 1250 lbs., although this figure is somewhat exceeded in the latest mills. The number of "drops" or blows per minute varies somewhat, but it is usually agreed that no advantage is obtained when dropping over 108 times per minute. It is more common to see stamps dropping at 102 or 103 times per minute, in this style of mill, where no amalgamation is attempted inside the mortars. The battery is now being used as a first grinder, and its product is commonly coarse, the finer grinding being more economically performed in tube mills, or pans.

In this work, and especially crushing hard quartz, the height of drop is about six inches, as a hard blow is necessary to crush this material.

With such heavy stamps, coarser crushing, and by the use of a large amount of water in the mortar, the duty per stamp has increased wonderfully. It is not uncommon to see stamps crushing as high as 7 and 8 tons per stamp per day, and this figure has been passed in a few cases.

From the batteries, the crushed ore passes to sizers, but the hydraulic classifier has the disadvantage of increasing the bulk of solution to be handled, since it is by this means that the sizing is accomplished. A settling sizer is the more preferable, that is, a sizer based on the laws of free-falling particles, purely, thus doing away with the necessity of using the large amount of hydraulic water. This separation covers the finer clayey slimes from the coarse sand, which is to be reground in tube mills or pans. The pan is used, only on a large scale, in Australia.

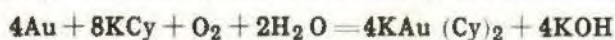
Grinding in a tube mill is done in as pasty a mass as possible, and from 75% to 90% of the sand passed through the mill the first time, is returned for its further reduction.

In a general way, it might be stated that the practical limit of fine grinding is nearly reached when nearly all of the pulp will pass a 200-mesh screen.

(C) Mechanical agitation naturally follows the necessities of the process. In order that the pulp may be surrounded by solution and fresh solution kept in contact with the ore particles, the said pulp must be kept in suspension in the said solution. There are a few schemes for accomplishing this, but the only ones worthy of notice are mechanical agitation by means of a stirring gear (made to revolve in a round tank) and the application of compressed air for this purpose.

In the second method, compressed air is admitted in the bottom of the slime tank, and by the ascending movement of same, the fine pulp particles are kept in suspension.

This compressed air plays another part, even more important than that of agitating the pulp, and that is, supplying the necessary oxygen for the dissolution of the gold and silver, which is shown by the familiar equation of Elsner:



In all methods of agitation slimes (which now constitutes the whole-ore) compressed air is used for this purpose.

The most successful and economical agitation, as well as aeration, is accomplished, I believe, by the use of a high narrow tank, with conical bottom, and internal air-lift. By this internal air-lift the pulp is kept in perfect agitation and there is always an excess of oxygen present. The cost of operation of this method of agitation is less than any other, and the consumption of compressed air is not nearly so much as one would think.

The separation of the enriched solutions from the very finely ground pulp is accomplished in two ways; by the well-known decantation process, and by direct filtration.

The decantation process is one of fractional separation, and there will always ensue a certain loss of valuable solution as well as cyanide.

By the continued washing, settling and decantation, most of the enriched solution will be recovered, but usually the economical point will be reached before. All of this solution has been recovered, due to the large amount of water wash required to accomplish the desired result. Besides, the consumption of lime is very great, as only by this medium can the settling be obtained.

It will be easily seen that as the amount of solution and water used in any one process increases, the pumping as well as precipitating and tank capacity must be increased, thus increasing first cost of plant.

To the contrary, by direct filtration, in any one of the well-known vacuum or pressure filters, a very small amount of wash water is required to displace the enriched solution, and besides the washing is much more perfect, due to the fact that comparatively thin layers of pulp are acted on.

The consumption of lime is very much less due to the fact that no settling is required. The loss of gold and silver values is materially decreased, as well as that of cyanide, and at the same time a much less amount of water is required for washing the pulp, which cuts down the first cost of mill as above explained.

The precipitation of enriched solution can be either done by the familiar zinc shaving method, or the zinc dust method.

First cost is in favor of zinc dust method, as are also the operating costs. The consumption of zinc in either method is practically the same, in relation to the weight of bullion precipitated, but the cost of zinc dust is about one-half that of sheet zinc, since it is a by-product from the manufacture of spelter.

Therefore there occurs quite a saving in the cost of the zinc consumed, when the dust is used. It would seem that everything is in favor of the zinc dust precipitation, especially for the precipitation of rich solutions.

While this paper merely covers the main improvements, accomplished in the application of the Cyanide Process, there are many smaller improvements which have materially improved the process.

Although many improvements have been witnessed, there still remains much to be done in further perfecting the process.

CHARLES HOYLE.





The Clay House



Uncle Phil



Brown



No 9



Bob



Frank



The Bridge of Sighs



Teddy



Check up

St. Patrick's Day

x

On one of those bright, spring-like days during early March, 1908, there appeared upon the bulletin board an invitation from the Engineers of Missouri University to the Engineers of Rolla, to send a representative to Columbia to participate in the Celebration of St. Patrick—the Engineers' Patron Saint.

On the Saturday afternoon following the invitation there congregated a large crowd of enthusiastic students in front of the Grant House. Every man had contributed his share towards the Saint's cause and now tried to do his best in assisting to land a few more students and professors as they came to get their mail or to meet No. 9. During the afternoon it was made known that a representative would be elected to go to Columbia. After supper, everyone turned out, and after a heated contest, John Bowles was selected as our representative.

In view of the fact that more money had been collected than would be necessary to send Bowles to Columbia, someone suggested that we should have a celebration of our own. The suggestion "took," and Geo. Menefee was unanimously elected to act as St. Patrick. Geo. A. Easley, Clay Gregory, and D. F. Forrester were selected as a Committee to arrange the day.

As the 17th of March happened to be a school day, the Committee had to do its work very secretly, so secretly, in fact, that they alone knew that there would be a holiday, and even then it was not certain that the school would "stick."

On the 16th the Committee made their assistants spend nearly all night decorating the huge entrance of Norwood Hall, and taking care of the night watchman. Other deputies were busy posting the town with bills, declaring a holiday for the following day, and requesting all students to meet at the depot at 8 A. M.

The sun rose bright and cheerfully on the morning of the 17th, and at 8 A. M., every student reported at the depot, where they were supplied with green sashes and shalalabs. The students had stuck, and a holiday had been established at M. S. M.!

The parade started from the depot—M. S. M. band in front—followed by St. Patrick clad in mitre and flowing silk robes, attended by his pages, and following these came the classes in the order of their rank.

On arriving at Norwood Hall the procession stopped, and St. Patrick, with his crude transit, surveyed a quadrangle in which his followers were to assemble. The engineers promptly filled the quadrangle, St. Patrick and his assistants taking up their position on the steps of Norwood Hall. Here various "stunts" were gone through, including a thrilling speech from St. Patrick and the interpretation of the hieroglyphics on the famous Blarney Stone which was found in the neighborhood of Rolla. The results of this interpretation proved most conclusively that St. Patrick indeed was an Engineer—a Mining Engineer as well as a Civil one. Following this came the conferring of Degrees, when Prof. Young and the Seniors were dubbed Knights of St. Patrick, and presented with appropriate diplomas.

After this the procession proceeded to town, when it disbanded for dinner, and the day ended with a band concert on the campus.

1909.

At a meeting of the Senior Class, March 7th, 1909, it was decided that the St. Patrick's Day Celebration should be engineered by the Junior Class. The Juniors received the information joyfully and selected the following Committee



to make arrangements: F. O. Blake, M. Farrar, C. W. Traugher, B. F. Murphy, R. B. Caples and C. A. Pierce.

"Windy" Holm was chosen to act as St. Patrick, and on the 17th, as on the year before, the parade started from the depot. This year, however, St. Patrick rode in state in a beautifully decorated float, drawn by six prancing steeds. In front of the Saint was the 'Varsity Band and following this the chariots and the classes in the order of their seniority. After the parade the Engineers assembled in front of Norwood Hall as usual, where the performance opened with a grand "Kow-tow," and ended by dubbing the Seniors and Professor Copeland Knights of St. Patrick.

The afternoon was devoted to athletic games and sports—of a kind—which were—well—uncommon, but which, nevertheless, were a source of amusement to many. As the next day was an exam. day, the students dispersed at about four o'clock and went home to study, thus terminating an eventful day.



Kibe & Ohzorg make their cupels out of Silica.

ATHLETICS



The Athletic Association



The object of this Association is the furtherance of Athletics at M. S. M. All students are eligible for membership and can become members by purchase of a season ticket at the beginning of the School year, and only members have a right to hold office or to vote on any question that may come before the Association.

If an athletic fee could be required in addition to the purchase of season tickets, it might serve as a stimulant to athletics generally. Possibly this may be the case in the near future.

The Board of Control consists of the Captains and Managers of the various teams, the President of the Association, the Treasurer of the Association, and one member of the Faculty. The Board of Control transacts all business for the Association. The present Board has proved its ability and efficiency, having already paid off several hundred dollars of old debts.

ASSOCIATION OFFICERS.

Frank Livingston, Physical Director.	R. L. Mook, President.
W. D. Clark, Treasurer.	Walter Dobbins, Vice-President
A. N. Detweiler, Secretary.	

FOOTBALL.

S. C. Macomber, Captain.	M. H. Detweiler, Manager.
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BASEBALL.

Clay Gregory, Jr., Captain.	R. F. McCrae, Manager.
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TRACK

Monroe Farrar, Captain.	F. T. Boyer, Manager.
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BASKETBALL

Clay Gregory, Jr., Captain.	J. C. Compton, Manager.
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BOARD OF CONTROL.

R. L. Mook	Clay Gregory, Jr.
W. D. Clark	J. C. Compton
Prof. D. Copeland	Monroe Farrar
M. H. Detweiler	F. T. Boyer
S. C. Macomber	R. F. McCrae



FRANK EDWARD DENNIE

Physical training should be an important feature in the collegiate work of a mining engineer, for he must be able to withstand hardships and undergo severe privations. That the importance of the systematic training of the physical powers of the engineer is fully appreciated by the Board of Curators of the University of Missouri is proven by the appointment of Mr. Frank Edward Dennie as Instructor in Physical Training for the college year of 1909.

Mr. Dennie has been actively identified with the athletic life of Brown University for four years and is thoroughly familiar with the Brown University athletic system, which is recognized by athletic circles as the best in the East. He represented his University for four years in football and for four years in baseball, and has also followed closely the other collegiate sports.

The Brown University athletic teams meet all of the other large Eastern Universities. In the annual football game with Yale University in 1908, Mr. Dennie scored two touch-downs, the final score being Yale 10, Brown 10. In baseball Mr. Dennie is considered one of the heaviest batters in college circles and he is posted on all of the fine points of the game. The Dean of Brown University in writing of Mr. Dennie's work as a student and as an athlete, says:

"He is one of the most remarkable athletes I have ever known, having not only the physical qualifications but also the athletic instinct in a very high degree. He is also a man of remarkable ability, of excellent character, and of good disposition."

An athlete with few equals, an engineer by training, a man of splendid character, Mr. Dennie is eminently qualified to fill the position of Physical Director at the School of Mines and will receive a hearty greeting from the entire student body and from all interested in the athletics of the School of Mines.

Football—1908



COACH LIVINGSTON

The football season of '08 opened with the brightest of prospects. The squad was out a little late, but were showing up nicely as regards form and speed. The first game on our schedule was with St. Louis University. To play those giants with only two weeks' training meant work and grit, of which the squad had plenty. The game was played at St. Louis, and when the two teams lined up it looked as if all those "big fellows" would have to do would be to grab the Rolla Miners by the neck and carry them over their goal line. Such was not the case however, as they were unable to score the entire first half. Their brute strength was telling upon our boys and in the second half they scored seventeen points. All in all, the game was well played from a Rolla standpoint, and the

school has every reason to be proud of their team.

The next game was played at Columbia, Mo., against the Columbia University eleven—or rather against their entire squad. As was the case in the St. Louis game, our team was decidedly out-weighted. We could only take fifteen men and it would have been nothing less than miraculous, if these fifteen men could have held the Missouri team with its unlimited supply of fresh material. This was a decided factor in the second half, as their men were practically all fresh, while our boys were the worse for the wear of the long first half. In the first half they made a goal from the field, netting four points. The second half was roughly played. We were unable to score, while our opponents made two touch downs. Macomber, Thompson and McKibben were the star players for the Miners. Final score was 17 to 0. This score is not at all bad considering the fact that the week previous we played the heaviest team in the state, and that our boys were out-weighted six pounds to the man.

Our next game was on the home grounds. On Oct. 21st Battery "A" made us a visit. This was the only opportunity that the college had to see their eleven play the great game of football. And the team certainly played ball—in fact, they played too fast and hard for the Battery. The touchdowns came so fast and often that it is useless to try to describe them; suffice it to say that the final score was Miners 45, Battery "A" 0. There were many nice plays. Those who showed up to the best advantage were F. Blake, Macomber, Thompson, H. Blake, Kenny and Schmidt.



C. A. PIERCE
Manager '08 Football

Now comes the only game that the Miners lost to a team of their own class—namely, to Carlton College of Farmington, Mo. This was the hard luck game of the season. Carlton did not cross our goal line once—their score was made by goals from field. And it must be said that they had an expert at kicking field goals. They only made first downs five times while M. S. M. started a procession to the goal line every time they had possession of the ball, and were only stopped by penalties from the referee when Carlton's goal was in danger. The game was well played throughout, and to H. Blake, F. Blake, Schmidt, Thompson, and Macomber belong many of the honors. Score: Carlton, 11; Miners, 6.

The next Saturday we had all arrangements made for the William Jewell College, of Liberty, Mo., but for some unknown reason they failed to appear.

The Thanksgiving day game was next in line. It was played at Springfield, Mo., with Drury College. The game was ours after the first ten minutes of play. The coach had a surprise to spring in the form of a back-field, and the way that back-field worked was good to see. With Thompson at full, Macomber and H. Blake at halves, and T. W. Blake at quarter, the Miners had a combination that was hard to beat. The entire team played well, but the back field covered themselves with glory. Barrett at center played a great game—but then they all played a great game, and to the entire team belongs the good wishes of the college. The score was 16 to 0 up to within the last few minutes of play, when one of Drury's ends got away for a touchdown. Final score, Miners 16, Drury 6.

The outlook for '09 is more than pleasing. The only men we will lose are Barrett and Mazany. Kranzthor did well at center during the Battery "A" game, and if he can play the game that Barrett has always played we are assured of the best team that M. S. M. ever boasted of. The men to whom we look for victory in '09 are Macomber (our all Missouri half-back), Thompson, H. and F. Blake, McKibben, T. W. Blake, Kranzthor, Kerr, A. N. and M. H. Detweiler, Kenney, Harlan, Joe Bowles, Strong and Raible.

LINE-UP

Coach, F. C. H. Livingston.

Manager, C. A. Pierce. Captain, A. R. D. Morgan.

THE TEAM

Left End	Kerr, F. Blake.	Right End	Thompson, Kenney.
Left Tackle	Joe Bowles.	Right Tackle	McKibben.
Left Guard	A. N. Detweiler.	Right Guard	Kranzthor.
Center	Barrett.	Quarter	{ T. W. Blake.
Left Half	Macomber		{ Schmidt.
		Right Half	H. Blake.
		Full Back	Thompson, Morgan.

SUBSTITUTES

Raible, Strong, F. Nachtman, Wemhaner, Harlan, Abernathy.

1908 SCHEDULE

Oct. 3rd	St. Louis University.	Nov. 11th	Carlton College.
Oct. 10th	Columbia University.	Nov. 18th	William Jewell.
Oct. 21st	Battery "A."	Nov. 25th	Drury College.



A. R. D. MORGAN

Captain '08
Full back
"M" '07



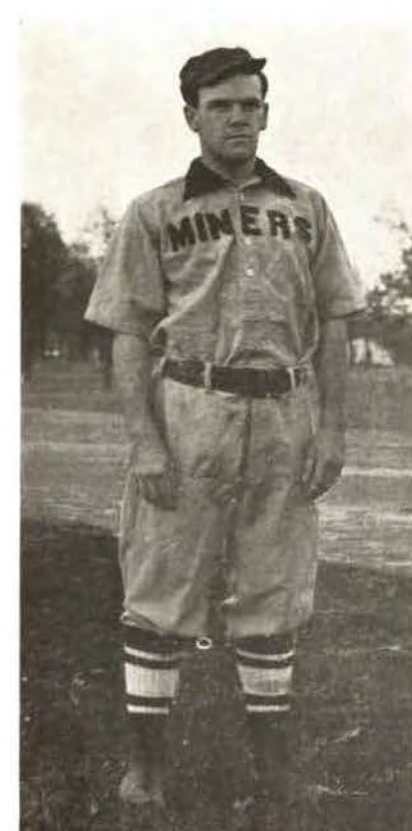
S. C. MACOMBER

Captain-Elect
Half back
"All Missouri" Right half
"M" '07, '08



R. F. McCRAE

Manager '09
Center field
"M" '07, '08



CLAY GREGORY, Jr.

Captain '09
Short stop
"M" '07, '08



A. N. DETWEILER
Guard
"M" '08



H. BLAKE
Guard and Back
"M" '08



J. J. BOWLES
Tackle
"M" '07, '08



F. O. KRANZTHOR
Guard
"M" '08



E. P. BARRETT
Center
"M" '05, '07, '08



S. SCHMIDT
Quarter Back
"M" '07



T. W. BLAKE
Quarter Back
"M" '08



H. D. McKIBBEN
Tackle
"M" '08



A. J. KERR
"End"
"M" '08



F. O. BLAKE
"End"
'Varsity Squad, '07, '08



R. C. THOMPSON
"End"
"M" '08



J. R. KENNEY
"End"
'Varsity Squad '08



J. D. HARLAN
'Varsity Squad '08



O. C. WEMHANER
'Varsity Squad '08



N. W. RAIBLE
'Varsity Squad '08
Half back



G. E. ABERNATHY
'Varsity Squad '08

Baseball

x



R. S. MOOK
President Athletic Association
Manager '08 Baseball

The baseball season of 1908 was one of the most successful the school has ever had. Of the thirteen games played, nine were won and four lost.

Illinois College, who managed to split even with us the year before, was beaten two straight. The star Baker University team from Baldwin, Kansas, came to us with fifteen or sixteen "wins" and two losses, and we "did things to them." The Springfield Normals, using a professional pitcher, played us close in one game, but the other three games were "walk-aways." Our last game with Arkansas was a glorious victory—one to be remembered for many a day, not only by us but by Arkansas as well. With the score one to one in our half of the eighth, we used the same squeeze play on them which they had been trying to frighten us with, but ours worked.

The Battery "A" team from St. Louis started out to give us a hard run, but five to nothing was the best they could do. Porri was pitching "like a big leaguer," and the team stood right behind him.

One of the four games we lost was to McKinley High of St. Louis. Only three of our regular team played, but it was the Varsity team of that time, so the best thing to do is to grin and bear it, and forever leave the high schools alone or turn them over to the Freshmen.

The other three games were lost to the strong Arkansas University team. Arkansas had the best team last year that they have ever had, and that is saying a "hat-full." In the first two games they kept our eyes wide open; their field was unusually fast and it is generally supposed that some of the Miners had an acute attack of stage fright. The third game with them, and the last game we lost, was played at Fort Smith. The Arkansas team laughed when "Dosie" went out to warm up ("Dosie" is no giant, you know), but their laughs were of short duration. Two hits were all they could make, and one of these was a slow infield roller which is generally classed as "a scratch."

This year's team bids fair to be even better than last. Most of last year's men are back and there are several promising new men. Of last year's team, Menefee, Ramey and Peeso are missing. We only ask that their positions shall be filled by men as capable as they were. The "old men" who will be in uniform are Porri, Jack Clark, Engleman, Gregory, Dosenbach, Baueris, McCrae, Ormsby and Owen. Of the new men there are Zimmerman, Hanes, H. Blake, W. Porri, Kerr, Kenny and our own Robert Kinney of Rolla.

BASE BALL LINE-UP

Manager, R. L. Mook

Captain, William Peeso

THE TEAM

W. PEESO, Catcher	J. C. Clark, 3rd Base
GEO. MENEFEY, Catcher	H. S. OWENS, Left Fielder
E. ENGLEMAN, 2nd Base	R. F. McCRAE, Center Fielder
C. GREGORY, Short Stop	R. L. MOOK, Right Fielder

PITCHERS

L. J. PORRI

M. H. DETWEILER

B. H. DOSENBACH

SUBSTITUTES

C. M. TAYLOR

F. BLAKE

H. H. JONES

1908 SCHEDULE

School of Mines.	4	Arkansas U.	7
Springfield Normals.	3	School of Mines.	0
School of Mines.	17	Arkansas University.	7
Springfield Normals.	8	School of Mines.	2
School of Mines.	10	Arkansas University.	1
Baker University.	3	School of Mines.	0
School of Mines.	5	School of Mines.	3
Battery A.	0	Arkansas University.	1
School of Mines.	11	School of Mines.	21
Springfield Normals.	4	Springfield Normals.	8
School of Mines.	7	McKinley High School.	9
Illinois College.	3	School of Mines.	8
School of Mines.		11	
Illinois College.		8	



J. C. CLARK
3rd Base
"M" '08



L. J. PORRI
Pitcher
"M" '08



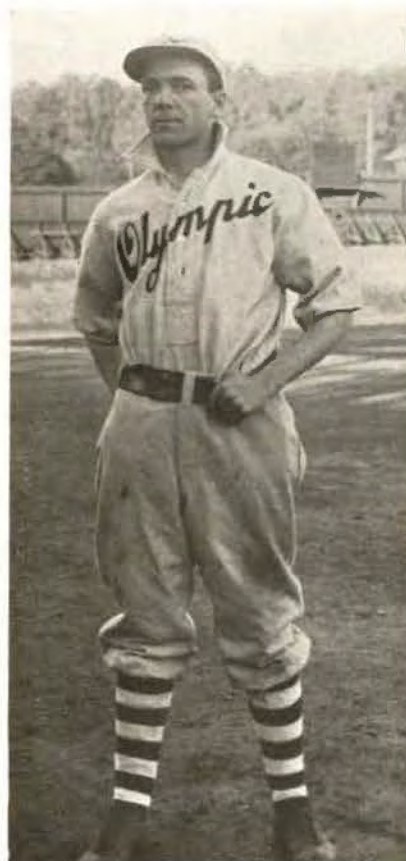
M. H. DETWEILER
Pitcher
"M" '08



E. W. ENGLEMAN
2nd Base
"M" '08



B. H. DOSENBACH
Short Stop, Pitcher, Fielder
"M" '06, '07, '08



GEO. MENEFEЕ
Catcher
"M" '08



C. F. RAMEY
First Base
"M" '08



H. S. OWENS
Left Field
"M" '08

Pan-Hellenic Baseball League



TROPHY

The Pan-Hellenic League consists of a team for each of the fraternities. The team at the end of the season having the highest percentage takes possession of the beautiful silver cup the year following. If any one team is successful three consecutive years the cup is to remain with them permanently. Kappa Alpha Fraternity has succeeded in holding the cup the past two years.

1908 SCHEDULE.

	Games played	Won	Lost	Per- centage
Kappa Alpha	3	3	0	100
Pi Kappa Alpha	3	2	1	66
Kappa Sigma	3	1	2	33
Sigma Nu	3	0	3	00
Kappa Alpha	9			
Pi Kappa Alpha				20
Sigma Nu	6			10
Kappa Sigma	12			19
Sigma Nu	4			7
Kappa Alpha				17
Kappa Sigma				3

Track

x



The opening of 1908 saw M. S. M.'s prestige in track and field events greatly strengthened. The Miners fought their way through three hard meets without once being defeated. Some fall training was indulged in by the distance runners, but this had to be stopped before very long, owing to the bad weather.

The first "try out" was held on April 18th, and despite a heavy track, excellent work was done.

On May 2nd a dual meet was held with C. B. C. in St. Louis. The heroic efforts of Dalton, the C. B. C. star, were insufficient to defeat the Miners, who won as they pleased by a score of 65 to 39. In this meet the field men made a great showing, allowing C. B. C. but ten of the possible forty-eight points to be made in the field events.

The week following the C. B. C. game was an anxious one for the Miners. They were preparing for

the intercollegiate meet to be held in St. Louis on May 9th, the following Saturday.

With great anxiety Captain Barrett worked to get his team on edge. Thursday evening he selected five men to represent M. S. M. against Shurtleff, C. B. C., Washington U. and Jackson. Barrett's judgment was good, in fact much better than that of the St. Louis press, which predicted an overwhelming victory for Washington University.

How Rolla tied Washington, how Barrett won the cup by flipping a coin, is already a matter of school history; but how genuinely surprised the readers of the St. Louis press must have been when they read from one big line, "Rolla wins in the West, Yale in the East" is merely a past memory.

This year's team should be even better than last. All the men are back except G. H. Boyer. Macomber should break his last year's pole vault record, 10', 9". Frank Blake should beat his last year's 440 record, 53 seconds. Captain Farrar and Lynton will be the distance men. Mazany and Barrett are expected to take care of the hammer. From past performances Blake, Bunten and W. Porri should be valuable men in the sprints. Bodman and Bland should prove to be valuable new men in the 220 and 440.



FRED BOYER
Manager '09; "M" '06;
100 yds., 220 yds.,
Low Hurdles.



MONROE FARRAR
Captain '09; Cross Country,
880 yds., Mile, "M" '08.



E. P. BARRETT
Captain '08; "M" '06, '07, '08;
Hammer, 114 ft., School Record;
Shot; Discus.



S. C. MACOMBER

Pole vault, 10' 9", School Record;
Shot, 39' 9", School Record;
High jump, Broad jump,
Hammer, "M" '08.



FRANK O. BLAKE

440 yds., 53 sec., School Record;
220 yds., pole vault, high jump,
"M" '07, '08.



M. S. MAZANY

Hammer, Hurdles,
"M" '08.



F. R. LOVERIDGE

Low Hurdles, 26 $\frac{1}{2}$ sec., School Record;
100 yards, 220 yards,
"M" '06, '08.



E. D. LYNTON
5-mile—30:40, School Record;
Mile; 880 yds.



R. B. MITCHELL
880 yds., Mile,
Cross Country.



A. KURTZ
Mile.



T. W. BLAKE
100 yds.,
220 yds.





M. S. M. Basket Ball Team

Basket Ball

✕

THE TEAM.

CLAY GREGORY, Jr.		Captain
J. C. CLARK		Captain-elect
M. S. Mazany	E. C. Robinson	H. Blake

SUBSTITUTES.

M. H. Detweiler	H. Porth
N. W. Raible	M. M. Albertson
G. T. Twyman, Manager.	

The basket ball team of 1909-1910 started out like a whirlwind, and like all whirlwinds, soon died out.

"C. B. C." and "Drury" were the first two games, and we won both of these easily. Then the team took a three-game trip; one game with Washington U., and two with Missouri. The team played a good game at Washington, but they were outclassed on the out-of-bounds play. The two Missouri games were "walk-aways" for Missouri, and they won as they pleased. The fifth game was where the School of Mines was disgraced. "Battery A" came down with three Battery men, and Central Y. M. C. A.'s two forwards. The Battery forwards were unable to come with the team at the last moment, but fortunately the two Y. M. C. A. forwards were handy!

Between being behind in studies, being injured, and being yellow, the team was in a bad fix for the Battery game. The game was a little rough, but not too much so, and Battery A won by a comfortable margin.



The Wearers of the "M"

Wearers of the "M"



FOOTBALL

J. Bowles, '07, '08	R. C. Thompson, '08
F. Nachtman, '07	A. J. Kerr, '08
E. P. Barrett, '06, '07, '08	A. N. Detweiler, '08
S. Schmidt, '07	T. W. Blake, '08
S. Macomber, '07, '08	H. Blake, '08
A. R. D. Morgan, '07	F. O. Kranzthor, '08
M. Thornberry, '06	H. D. McKibben, '08

TRACK

G. A. Easley, '04	S. Macomber, '08
F. T. Boyer, '06	F. Blake, '07, '08
M. Farrar, '08	F. Loveridge, '06, '08
E. P. Barrett, '06, '07, '08	M. Mazany, '08

BASEBALL

B. H. Dosenbach, '06, '07, '08	E. Engelmann, '08
H. S. Owen, '08	R. G. Ormsby, '07
R. McCrae, '07, '08	R. L. Mook, '07, '08
J. Clark, '08	M. H. Detweiler, '08
L. J. Porri, '08	C. Gregory, '07, '08

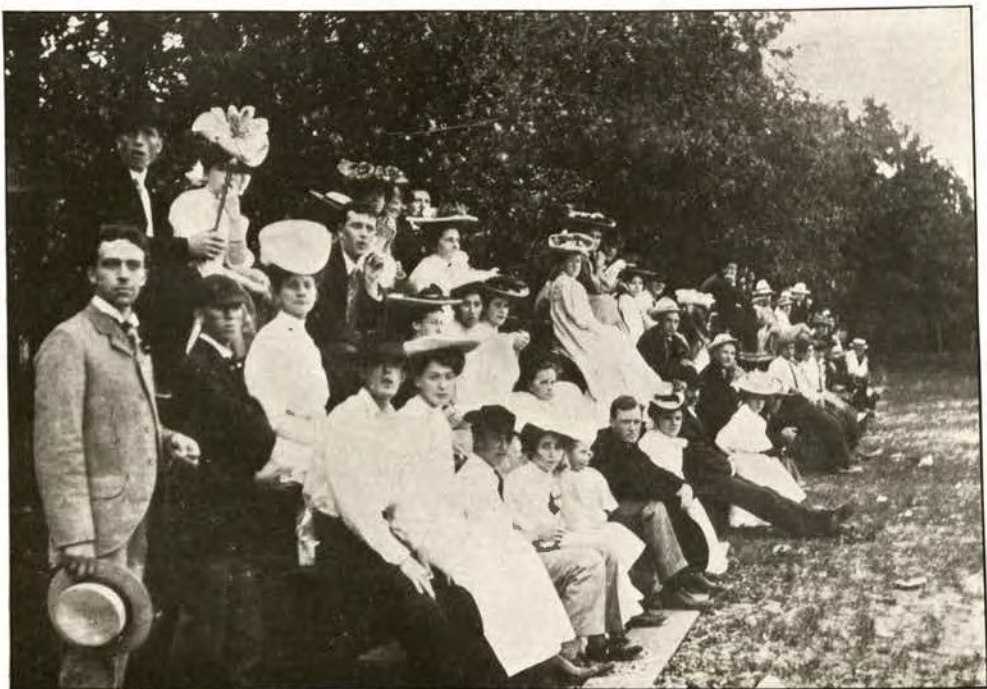
BASKET-BALL

H. Porth, '08	M. H. Detweiler, '08
M. Mazany, '08, '09	C. Gregory, '08, '09
F. Blake, '08	H. Blake, '09
G. T. Twyman, '08	J. Clark, '09
E. C. Robinson, '09	

School Athletic Records

Events	Record	Holder	When Made
100 yds.....	:10 1-5	{ A. A. Thomas	1902
		{ K. V. Moll	1902
220 yds.....	:23 2-5	K. V. Moll	1902
440 yds.....	:53	F. Blake	1908
880 yds.....	2:02	John McCarthy	1901
Mile.....	4:40	G. Hewitt Boyer	1906
Shot.....	39' 9"	S. C. Macomber	1908
Hammer.....	114'	E. P. Barrett	1908
Discus.....	111' 6"	E. P. Barrett	1908
High Jump.....	67'	John Graves	1905
Broad Jump	20' 5"	C. W. Traugher	1907
Low Hurdle	:26 2-5	Frank Loveridge	1906
High Hurdle	:16 2-5	Ray Hoffman	1905
Pole Vault.....	10' 9"	S. C. Macomber	1908
5 Mile Cross Country.....	30:40	E. D. Lynton	1908

The Editors publish the above with apologies for its shortcomings, as complete records have never before been put on file. They feel however, that it is time that some record should be kept of these events.



ON THE BLEACHERS
"Old Sweethearts of Ours"

The 5-Mile Cross-country Race



Quite a little enthusiasm was aroused over this race, which took place on the afternoon of December 5th, over a soft, muddy road.

There were eight starters. Gregory, Schmidt and Boyer were the first to start out with a handicap of five minutes. After an interval of two minutes Beard, McNair and Mitchell started, to be followed three minutes later by Farrar and Lynton, the two scratch men.

The full course was $2\frac{1}{2}$ miles out along the road, back again and one lap around the track to the tape.

McNair was the first to reach the turning point, where W. Harrison marked off the men as they turned the tree. McNair gave out here and so did Beard. The other four went around in a body, with Mitchell in the lead. Half a minute later came Farrar, with Lynton last. Mitchell was not overtaken until the top of the first hill was reached, when an open field was left for Farrar, who was still a few yards ahead of the little Englishman. This order was maintained throughout until within a quarter of a mile of the finish, when Lynton slowly drew away from Farrar and won by about 40 yards; his time being 30 minutes, 40 seconds, Farrar coming in about fourteen seconds later, with Mitchell third.

Four medals were awarded. Lynton received the two gold medals, one for first place, and one for the best time, the latter medal being given by the Hellenic Club. Farrar received the silver medal, the bronze going to Mitchell.



The Finish of the Marathon (Beard & McNair)



Professor Seltzer's Class

Notes on Life in China



The apologies for this attempt at an article, or composition, whatever you may choose to call it, are numerous, but two in particular deserve mention; first, the writer is strictly non-literary; second, to attempt to present even a brief outline of life in a country so large, ancient, varied, complex and unique as China, in so brief an article as this must necessarily be, is truly impossible.

Just now permit me to give you a word of excellent advice: If, perchance, some of your good men of dear old M. S. M. should come this way and be obliged to go through the horrible ordeal of entering the gate of the native city of Wuchang, don't fail to securely blindfold your eyes with a sheet, or something commodious, plug up your nostrils with a bale of cotton, and also stuff a bale in each ear. Don't fail or you will certainly regret it and immediately be seized with a longing desire to fly back to your Alma Mater. Unfortunately, I was not advised of this, so was obliged to take in the horrible mess (if you will permit the term).

The dirty, filthy lanes, or so-called streets, are unpaved, extremely rough, have numerous mud holes with mud and slime sometimes 10 or 20 inches deep, have no sidewalks, and are the most uninviting spectacles I ever witnessed. The mass of stores, or rather dirty, dark, dingy huts, on either side were indescribable. Every conceivable sort of article is kept for sale or trade, but almost all are of inferior grade and almost all absolutely useless to foreigners. However, the conditions of these combined places of business and living quarters (for all Chinese live in their place of business), is honestly come by and decently maintained as it is in strict keeping with the owner. As we are carried along, my hopes very gradually began to recover and to rise as conditions began to improve slightly, but I still failed to see why I was brought out to this distant land to teach Chemistry and such neat and delicate subjects as Qualitative and Quantitative Analysis, to such a miserable lot. After a two-months' trial, I find it an exceedingly difficult and strenuous task to impress the students with the absolute necessity of neatness, cleanliness, and accuracy, in these subjects. It will require years of hard, patient, and painstaking work to make good chemists of them. However, it is only fair to state here that it is marvelous how easily and readily one accustoms himself to conditions in the Orient, and reconciles himself to the deplorable conditions which exist in the greater

portion of the country, and becomes in a sense content to remain and use his best efforts to better conditions and to elevate the poor, ignorant and unfortunate natives.

We were finally carried into the most decent section of the city and soon reached the wonderful (?) and imposing Imperial Mining College. The building did in reality have a most grand and imposing look in comparison to what we had just endured. The building is two stories high, built of brick, and is about 420 ft. long and 70 ft. wide. It was not intended for so dignified an institution as a mining college, but for a railway hotel.

As they have been contemplating building this famous and extensive railroad between Wuchang and Canton (a distance of about 500 miles) for thirty-four years, and it might take another thirty-four years to complete it, it was cleverly suggested by the Viceroy that the hotel be used for a mining college for the present, as the life of a government school in China is extremely uncertain, some unfriendly viceroy will very likely kill the mining college long before the historic railway will call for the building.

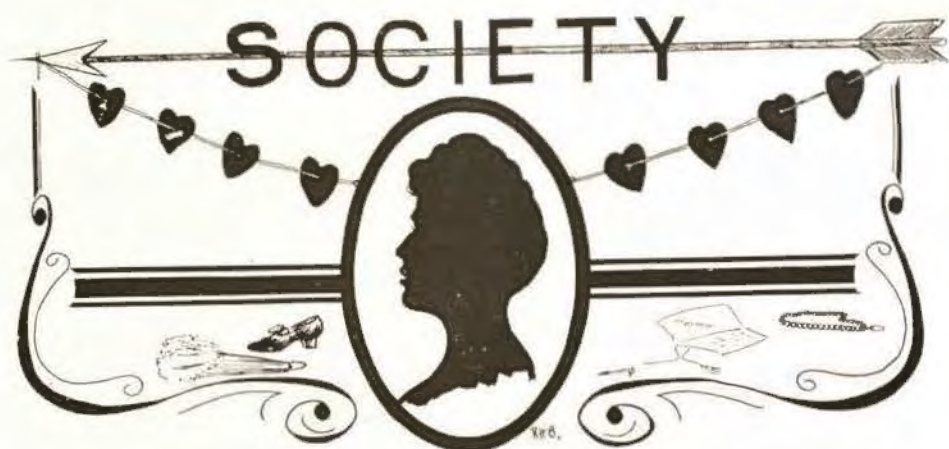
No sooner had we passed through the college gate than the students in scores flocked around us so closely that we hardly knew whether we would be robbed or suffocated. They could scarcely be driven away, and it seemed that the appearance of their "foreign devils," whose arrival they had been anticipating for many weeks, was more than they could comfortably endure, so they insisted on making an early and thorough acquaintance, somewhat to our annoyance.

We could find few resemblances between this mining college and our Alma Mater. The class-rooms are very different, the desks resemble those which our forefathers used and the entire room reminds you of one of our very old primary class-rooms. The laboratory, or rather the room intended for the chemical laboratory, was clearly not to be mistaken for those of M. S. M. However, I learned later that enough chemicals and expensive apparatus had already been ordered from Germany to stock several laboratories of this sort. A striking thing was that there seemed to be as many reception and tea-rooms as there were class-rooms. These are absolutely necessary here. Whenever any visitor comes to the college he is entertained with tea in the reception room. We were very graciously informed that inasmuch as we had just completed a 30-days' journey, we must go to the hotel in Hankow, have a long rest, that we need not worry about beginning work, as our salaries were in force and our hotel bills paid, so why should we be impatient to work? After two-weeks' rest, we wished to know when we were to begin teaching, as the College had opened early in September and it was then November. The authorities replied that as we were drawing our salaries, we should be entirely content. They cannot understand why any one should work if he is drawing his salary without it.

ANDREW J. SELTZER,

Class of 1907.





The social environment in Rolla during the season 1908-9 has been one of many functions. Each week has seen its dance or party. The school dances, Y. M. C. A. entertainments, minstrel performances and holiday exercises, as well as the respective church clubs and fraternities, have each contributed to the social life of the M. S. M. students. The enthusiasm demonstrated by the boys in their regular participancy in these affairs leads us to believe that we have fully as good a time as students attending "co-ed" schools in larger cities.

The Rolla girls are unequaled anywhere for "good fellowship" and they make the "out of school hours" pass very quickly and pleasantly.

The school dances, while not as frequent as we might wish, have been well attended and greatly enjoyed; the "Novelty Ball" and masquerade both being brilliant functions.

The Y. M. C. A. entertainments afforded those who do not enjoy dancing, as well as those who do, diversion from the daily dull routine of school work. The minstrel performances were both excellent productions and the fact of their being appreciated was evidenced by the large and enthusiastic audiences that attended. It is almost certain that these minstrel shows will be an annual function from now on.

The fraternities have been a large source of social enjoyment. Kappa Alpha has entertained frequently during the year, and in November opened the doors of their new home to the "Colonial Minstrel" girls, who were their guests on that occasion. Sigma Nu has also been in the social whirl, giving several dances and moonlight sleighing parties. Kappa Sigma, too, has entertained at cards and dancing. Pi Kappa Alpha gave their annual Hallowe'en ball as usual and their informal dances during the year.

Get the habit of going to these school dances, entertainments, etc. It lends so much to college life to indulge in the social side as well as the dreary grind of technical pursuits. Nothing so broadens a man's views as to mingle with the world and partake of the benefits that it offers. So with these rare opportunities for a good time that are offered us by "a technical school in a small town" let us make the most of each function; so that, when the time comes for us to leave good old M. S. M. we can look back, not only with pride as to her standing as an educational institution, but as a royal entertainer as well.



Fraternities







Sigma Nu Houses

SIGMA NU

Colors: White, Gold, and Black. Flower: White Rose

Gamma Xi of Sigma Nu

Installed Jan. 23, 1903.



CHAPTER ROLL

Frater in Urbe
O. L. Brettner

1909

A. E. Wishon	R. W. Watson
L. R. Walker	W. D. Clark
J. C. Compton	W. S. Hall

1910

V. H. Smith	J. L. Pickering
C. R. Miller	H. D. Gray

G. T. Twyman

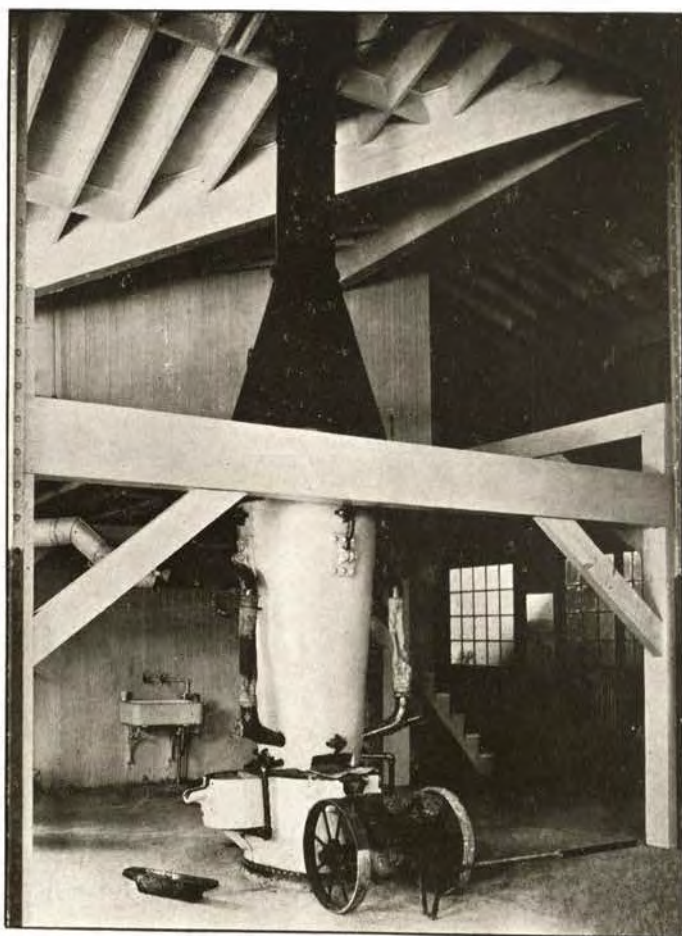
1911

R. N. Copeland	H. H. Jones
J. H. Chase	C. Z. Overstreet

1912

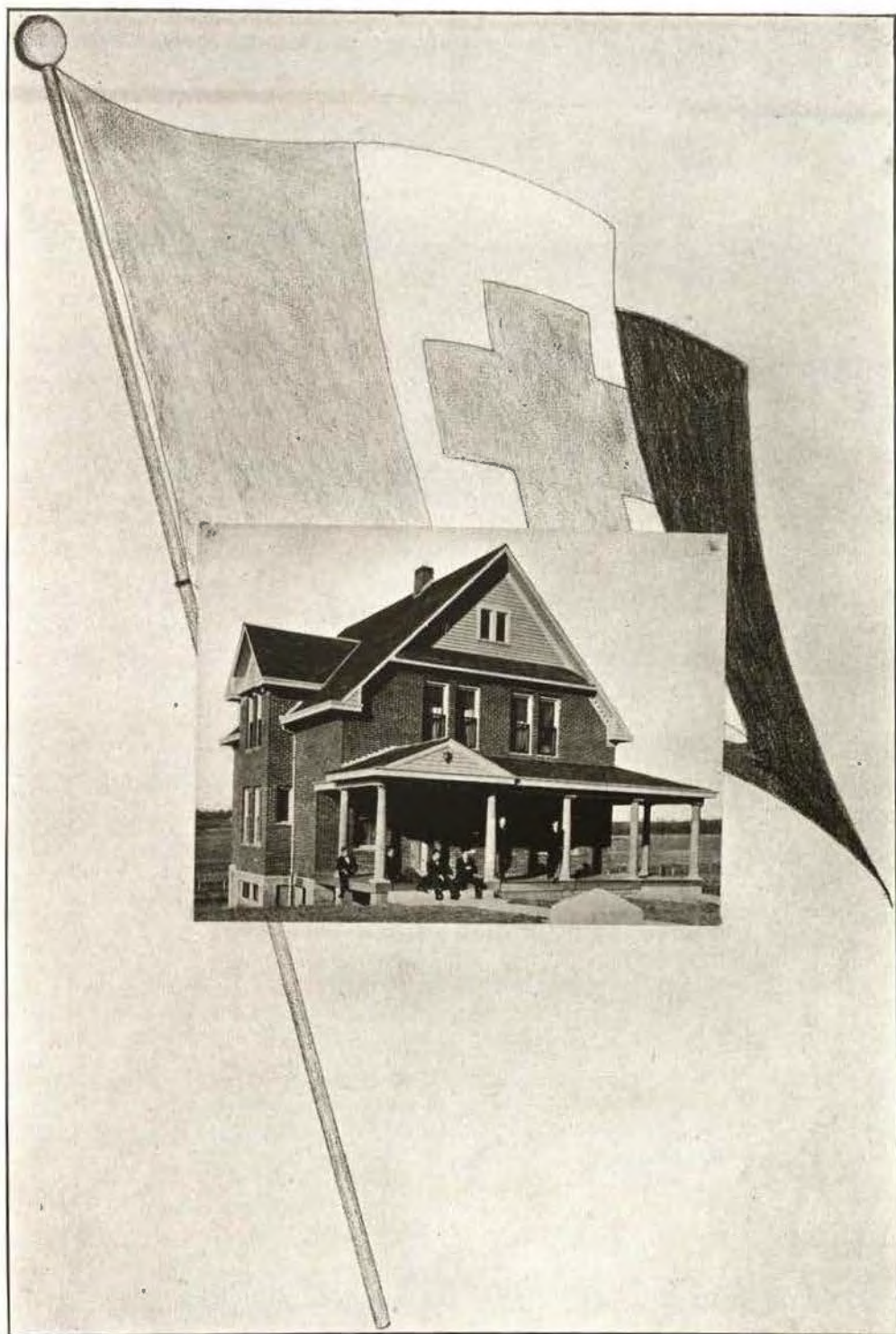
H. Blake	C. W. Wright
J. B. Leavitt	J. H. Duncan
E. C. McFadden	E. C. Robinson





The Cupola Furnace





Kappa Alpha Home

KAPPA ALPHA

Founded at Washington and Lee University, 1865.
Colors: Crimson and Old Gold.
Flowers: Red Rose and Magnolia.
Beta Alpha Chapter established April 27th, 1903.
Active Chapters: 48. Alumni Chapters: 70.
Publication: Kappa Alpha Journal.

Kappa Alpha

BETA ALPHA CHAPTER



CHAPTER ROLL

FRATER IN URBE

Chas. L. Woods

FRATER IN FACULTATE

Dibrell P. Hynes, B. S.

FRATRES IN UNIVERSITATE

SENIORS

Hector George Sylvester Anderson

William Albert Baueris

George Albert Easley

Alexis Xavier Illinski

Paul Bauchmann Leming

Rowe Francis McCrae

JUNIORS

Robert Sexton Allen

Duncan Slater Smith

George Clark Vogt

John Richardson Kenney

SOPHOMORES

Sumner Cooley Macomber

Louie Lincoln Coover

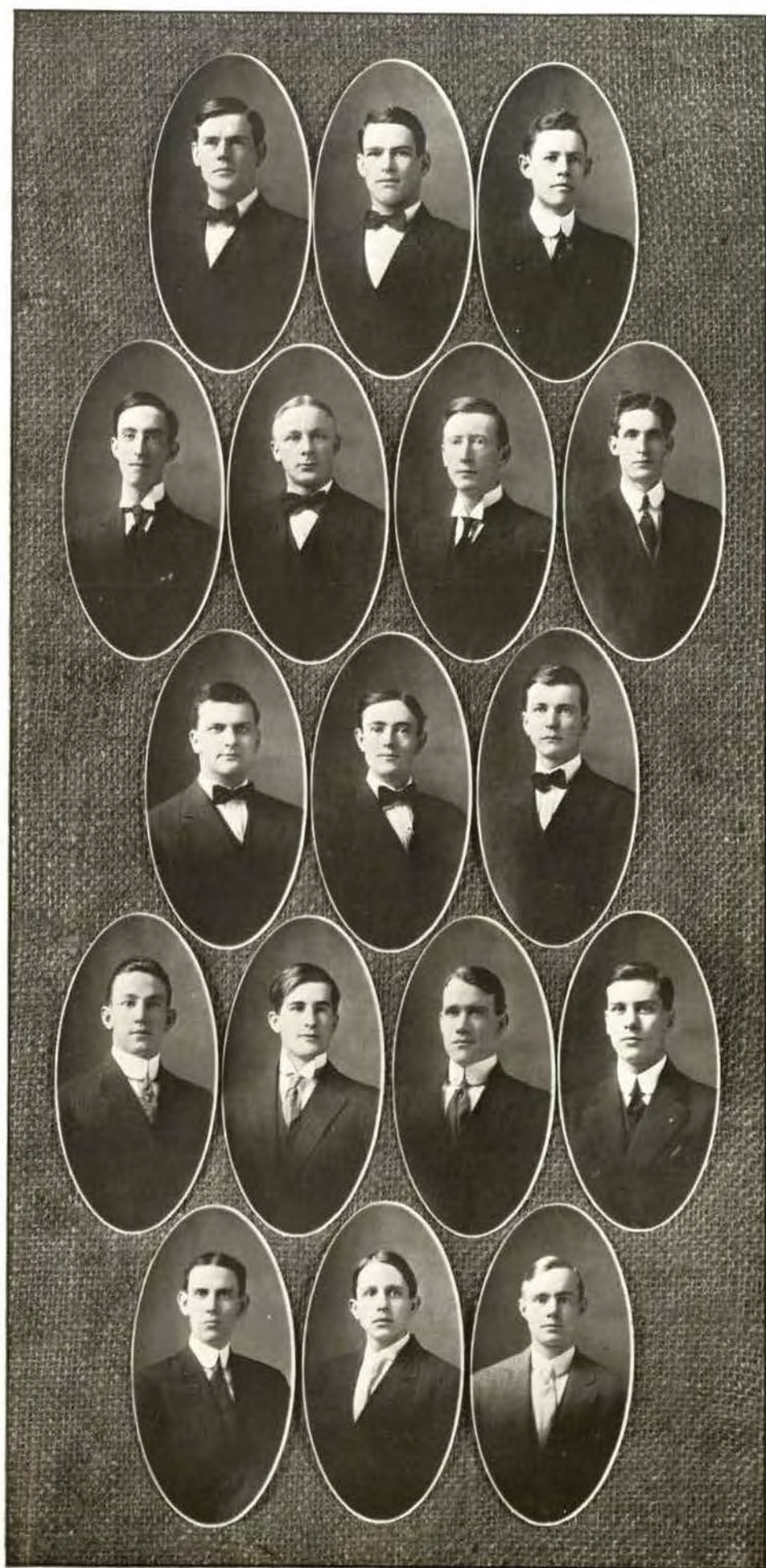
Edward William Englemann

James Edward Hanes

FRESHMEN

John Lilburn Bland

Edward Thomas Ustick, Jr.



Kappa Alpha



RHB



RECHTSTREK



Kappa Sigma House

KAPPA SIGMA

Founded: 1400.

Established in America: 1867.

Colors: Crimson, White, and Emerald.

Flower: Lily of the Valley.

Publication: Caduceus.

Active Chapters: 77.

Alumni Chapters: 53.

Beta Chi Chapter installed Dec. 19, 1903.

Kappa Sigma

BETA CHI CHAPTER



FRATER IN URBE

Victor Harmon Hughes

FRATRES IN UNIVERSITATE

SENIORS

Frank Xavier Nachtman

Benjamin Harrison Dosenbach

William Hamilton Jones

JUNIORS

John Charles Clark

Harry William Lee Porth

Albert Henry Shaw

Sanford William Andrews, Jr.

SOPHOMORES

Harry H. Martin, Jr.

Stanley Louis Nason

Conway Guild Williams

Rolfe Cleveland Gosrow

David Lawton Forrester

Benjamin Horace Cody

Ralph Collistus Nachtman

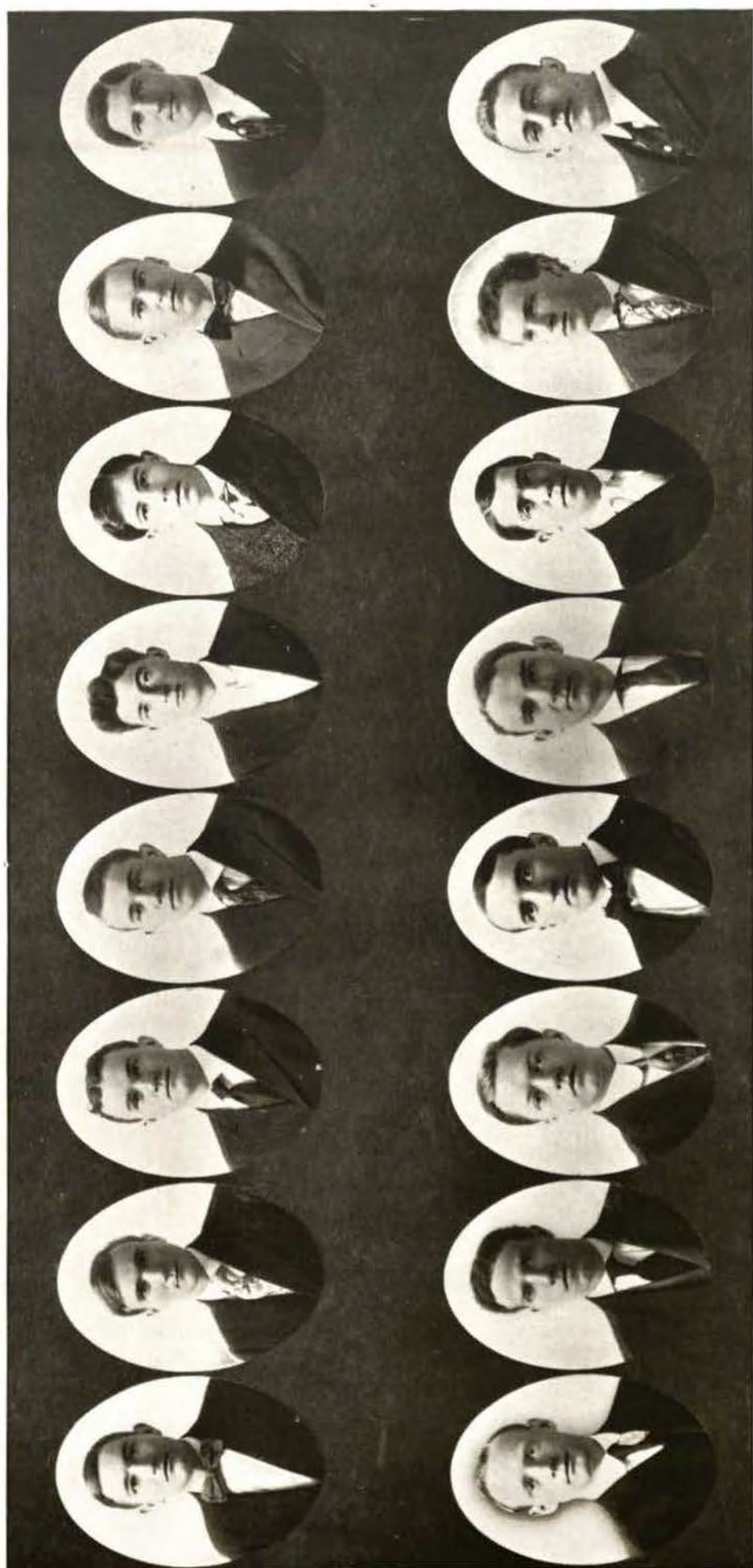
Frank James Flynn

FRESHMEN

William Bryce Smith

Arthur Wellesley Hackwood

George Sylvester Thomas



Kappa Sigma



What the M. S. M. School pin really looks like

Π Κ α λ φ α

FOUNDED AT
THE UNIVERSITY OF VIRGINIA
March 1st, 1868

ALPHA KAPPA CHAPTER
Installed Dec. 2d, 1905

Colors—Garnet and Gold

Flowers—Tulip and Lily-of-the-Valley

Publications { Shield and Diamond.
Dagger and Key.

Pi Kappa Alpha

ALPHA-KAPPA CHAPTER

x

FRATER IN FACULTATE

Horace Tharp Mann

FRATRES IN UNIVERSITATE

Post-Graduate

Edwin Phelps Murray

1909

Harry Clay Kibe

Theodore Saunders Dunn

1910

Harvey Edson Smith

Walter Finney Siegmund

Harmon Edwin Minor

Coral T. Heydecker

Harvey Skidmore Owen

1911

Oscar Allen Randolph

James Keller Beach

Arthur Gustav Pudewa

Donald Hewson Radcliff

1912

Harold Dennis McKibben

Alexander Scott Bilderback

Andre Joseph Kerr

Robert Crofts Purcell

Eugene Harding Broughton



Pi Kappa Alpha

Hellenic Club



Established Sept. 29th, 1903



FRATRES IN FACULTATE

Dr. A. L. McRae, $\chi\phi$

Durward Copeland, ΣP

G. W. Corey, ΣP

E. S. Smith, $\phi K \psi$

FRATRES IN UNIVERSITATE

S. D. Callaway, $AT\Omega$, $\Theta N \Sigma$

W. N. Clark, $\Delta T \Delta$

C. R. Forbes, ΣP

V. B. Hinsch, $\phi \Delta \Theta$

R. W. Mackey, $\phi K \Sigma$

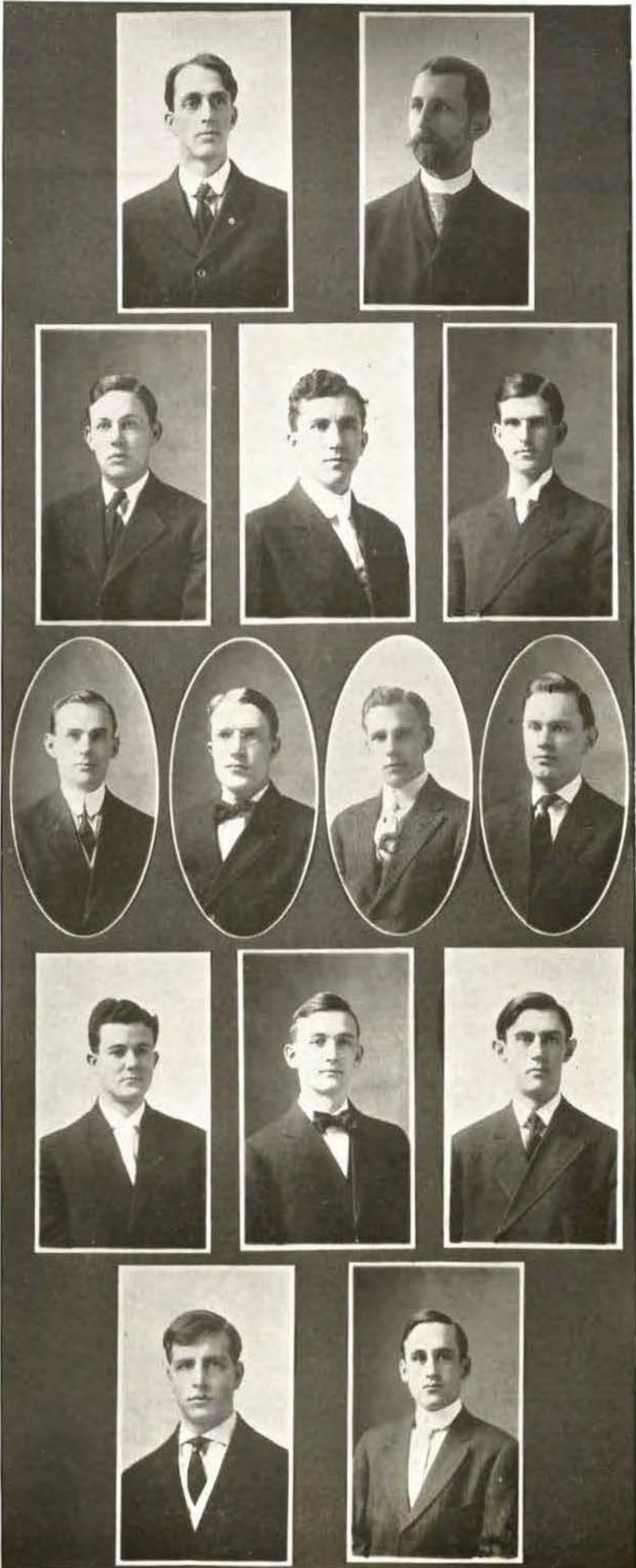
A. L. Pollard, $B\Theta\pi$

R. W. Runnels, ΣX

H. L. Tedrow, ΣX

H. L. Welsh, $\Delta T \Delta$

G. H. Zimmerman, $\phi \Delta \Theta$



The Pan-Hellenic Club



Tau Beta Pi

Founded 1885.



MISSOURI BETA CHAPTER.

Established Dec., 1906.

FRATER IN URBE.

Geo. E. Ladd, Ph. D.

FRATRES IN FACULTATE.

L. E. Young, B. S., E. M.	L. E. Garrett, B. S.
A. L. McRae, S. D.	L. S. Griswold, A. B.
G. R. Dean, C. E.	D. Copeland, S. B.
V. H. Gottschalk, M. S.	R. C. Thompson, M. S.

FRATRES IN UNIVERSITATE.

Post-Graduates.

H. T. Mann, B. S.	D. P. Hynes, B. S.
E. P. Murray, B. S.	

SENIORS.

A. L. Pollard.	W. A. Baueris.
A. X. Illinski, D. O.	W. D. Clarke.
G. A. Easley.	C. W. Keniston.
H. O. Garst.	F. X. Nachtman.
E. L. Chamberlain.	J. W. Beard, C. E.
R. H. B. Butler.	V. H. Hughes.

JUNIORS.

A. A. Park.	J. D. Harlan.
C. R. Miller.	H. W. Porth.
L. J. Porri.	C. A. Pierce.

COLORS: Seal Brown and White.



Tau Beta Pi

M. S. M. Orchestra



C. W. KENISTON

The charm of college life grows more and more attractive as the spirit of music and song develops in the student body. The Orchestra, the Mandolin Club, the Glee Club, and the Minstrel, each has a place, and all together weld the student body into one great living and feeling unit.

During the last two years the School of Mines Orchestra has been a splendid influence in many ways, but particularly in arousing interest in college music. The co-operation of the Orchestra has been of invaluable assistance to various student enterprises and everywhere the true spirit of college fellowship and co-operation has been exhibited.

The Orchestra has proven itself and has shown high-class ability, and we trust will continue to furnish music for all college functions, including the Commencement Exercises. Enthusiasm for college music has developed to such a degree that we predict even greater successes for the Orchestra. Any statement of the work and success of the Orchestra would be incomplete if no mention were made of the unselfish and untiring work of the director, Mr. Carl W. Keniston. The members of the Orchestra have shown true college spirit, and we believe that their endeavors will result in greater unity, more devoted school loyalty, and a college life filled with music and song.

MEMBERS OF ORCHESTRA

C. W. KENISTON, Director	Clarinet
P. E. COASKE	Violin
A. KARTE	Violin
L. E. GARRETT	Violin
S. JOCHAMOWITZ	Flute
R. B. MITCHELL	Cornet
R. NACHTMAN	Trombone
VAN SMITH	'Cello
JOHN KENNEY	Bass Viol
F. E. RIEDE	Piano
A. R. MORGAN	Traps
E. LIST, Manager	Traps



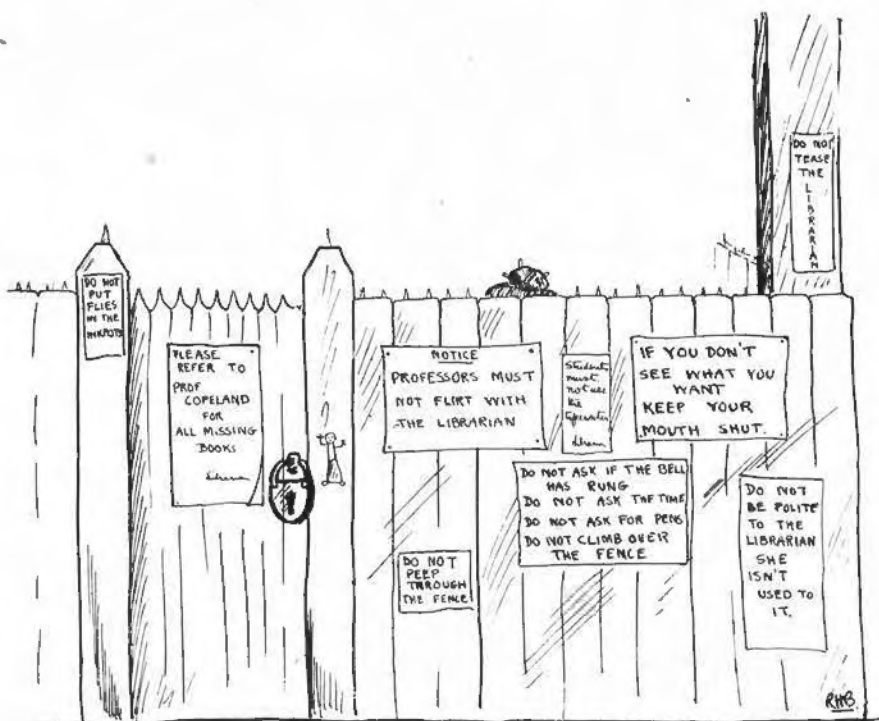
M. S. M. Orchestra



The Faculty Baseball Team



Dec. 30th. Prof. Scott gets a turkey



Suggested Design for the Fence Around the Librarian







Grubstakers' Club

“Grubstakers’ Club”

Name	Class	Occupation	Chief Hobby	Chief Fault.	Party or Religion	Nickname
Boyer, F. T.....	Senior	Doing what Gregory says	Board of Control	Breaking into Society	The party in power	Booger
Clark, W. N.....	Senior	Taking care of the babies	Dolls	Visiting Topeka, Kan.	Rep.	Willie
Pierce, C. A.....	Junior	Taking care of J. C. Clark	Y. M. C. A.	Belonged to Board of Control	None	Collie
McElroy, W.....	Senior	Pilot	Unloading schooners	None	None	“Bill” Mac
Barrett, E. P.....	Prof?	Cussing the Freshmen	Trying to run the A. A.	Red headed	Socialist	Red
Humphrey, B. W.....	Senior	Calling	Travelling to the Nile(s)	Laughing	Independent	Chick
Long, J. C.....	Post-Grad.	Trammer	Trying to out-talk Kibe	Telling about it	Jew	Jimmie
Jobes, C. T.....	Junior	Taking trips to Country	Airyoplanes (?)	Billiard shark (?)	Socialist	Taft
Blaylock, D. W.....	Junior	Running Y. M. C. A.	Baptist Girls	Losing out	Local option	Danny
Loveridge, F.....	Senior	Loafing in P. O.	Going to church	He is a married man (?)	M. E. preferred	Lovey
Houseknecht, S.....	Freshie	Sleeping	Batavia Girls	Porch climber	Holy Roller	G. P.
Keniston, C.....	Senior	Running Orchestra	Playing with Coaske	“In Tech.”	Middle of the road party	Kenny
Blake, T. W.....	Soph.	Looking Pretty	Picture Shows	Getting on exempt lists	None	Red
Murphy, B.....	Junior	Bowler	Chemistry	He is a geologist	M. E.	Pat
Bowles, J. J.....	Senior	Sailor of the Seas(e)	Senior English	Friend of Raj	Republican Mohammedan	Joe
Thompson, R. C.....	Junior	Writing letters	Arcade	Bigamist	Prohibitionist	Rommy
Don, De F.....	Senior	Playing with rocks	Waiting at the church	Tossing little wooden blocks	Dem.	Prof.
Mazany, M. S.....	Senior	Fighting	Instructor in table etiquette	Grumbling	Doukhobor	Slats
Dobbins, W.....	Senior	Ward Heeler	Politics	Agitator	Mormon	Horse “Caballo”
Karte, A.....	Junior	Trying to look like a student	Freshman Algebra	Hard Student	Prohibitionist	Dutch
Lunak, O. A.....	Soph.	Helping Clark	Bird dogs	Going to St. James	Dem.	Otto
Kurtz, A.....	Soph.	Finding Fault	Qualitative Laboratory	Big feet	Prohibitionist	Skirts
Bunten, J.....	Junior	Looking for girls	Wynn-ing	Celebrating finals	Mormon	Scotch
Riede, F. E.....	Junior	Taking care of Bunten and Minor	Thermo	Qualitative	Quaker	Dutch



The "Lucky Strike" Club

“Lucky Strike Club”



R. H. B. BUTLER, President

A. N. DETWEILER, Steward

143

Names of Men	Class	Occupation	Chief Hobby	Chief Virtue or Fault	Nickname
Abbott, E. R.	'11	Bowling	Politics	Betting	Pete
Adams, H. F.	'11	Cactus Horticulturist	Qualitative Lectures	Unknown	Hank
Allen, E. J.	'11	Blacksmith	Calc. Shark	Midnight Revels	
Beard, J. W.	'09	Interviewing Profs.	Making exempts	Talking	Whiskers
Butler, R. H. B.	'09	Boosting England	Alt. Currents	Arguing	Reggie
Chowning, J. W.	'11	Geologist	Fresh Chem.	Keeping still	
Detweiler, A. N.	'10	Talking	J. Rufus Wallingford	Giving advice	Greater Det.
Detweiler, M. H.	'10	Mysterious	Salem Avenue	Whistling	Lesser Det.
Forman, J. K.	'10	Machinist	Staying high man on Sa- lem Ave.	Negligence	Jake
Fraser, K. C.	'10	Fishing	Geology	Going to sleep studying Mech.	Friday
Lynton, E.	'12	Fussing	Girls	Inconstancy	
McNair, S. C.	'12	Athlete	Long distance running	“The Girl”	Mac.
Myers, W. P.	'12	Miner	Making E's	Mystery	
Stewart, J. S.	'10	Popularity	Politics	Making Noise	Stew
Tedrow, H. S.	'11	Actor	The Villain	Teasing Jobs	Teddy
Zimmerman, G. H.	'12	Engineer	Baseball	Laughing	Zim

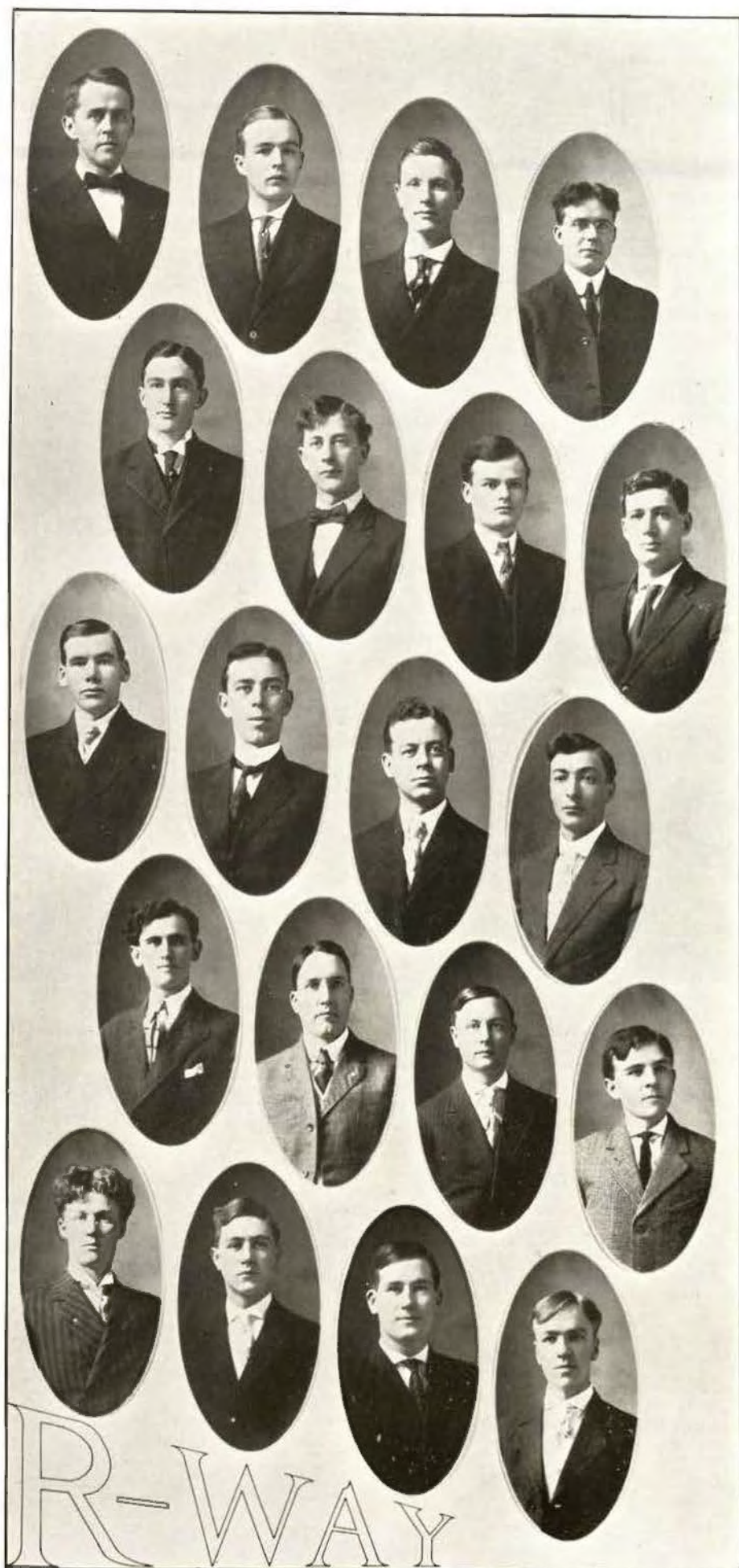
R'Way Club



- J. OSCAR WAFER, '12, "Vanilla."
WILLIAM H. ELBELT, '12, "Dutch."
H. W. SHAW, '12, "Pomp."
F. C. TOWNSEND, '11, "Old Faithful."
GEO. E. ABERNATHY, '11, "Aber."
R. R. TWAY, '12, "Lady Killer."
ALBERT L. BRADT, '12, "Chemist."
FRED KRANZTHOR, '12, "Texas."
P. F. MICHAEL, '09, "Mike."
CHAS. A. BURDICK, '10, "Burd."
H. WADE CONNELLY, '10, "Cupid."
HARVEY O. GARST, '09, "Piggy."
J. C. RADOVICH, "Special," "Ariz. Pete."
H. H. HIGH, Special, "Sweetheart."
OSCAR C. WEMHANER, '12, "Goog."
HAROLD P. FORD, '11, "Angel Child."
LLOYD C. NEWTON, '11, "Arkansas."
M. F. SCHMICH, '12, "Scrubby."
G. W. SCHILLING, '12, "Buddy."
MEAD JOHNSON, '12, "Tiger Head."

OFFICERS.

- C. A. BURDICK, President.
H. WADE CONNOLLY, Steward.
P. F. MICHAEL, Auditor.



The R-Way Club



The Training Table

Training Table

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RUSSELL B. CAPLES, JR., President

MONROE FARRAR, Steward

Name	Class	Occupation	Chief Hobby	Chief Fault or Virtue	Nickname
Elmer List.....	'09	Keeping quiet	Saying Nothing	Attendance	Elmo
Van Hoose Smith.....	'10	Moving pictures	Witticisms	Arkansas	Van
Norman W. Raible.....	'12	Guardian to Porter	Training	Noisy	Doc.
Robert B. Mitchell.....	'11	Loafing	Cornet	Imbibing	Mitch.
Archie Shay.....	'13	Fussing	One girl	Swearing off	Arch.
147 Sidney S. Schmidt.....	'10	Pool	Geology	Church attendance	Sid.
Vachel Harry McNutt.....	'10	Playing	"Fowl" language	Abstinence	Melancholy
Monroe Farrar.....	'10	Running	Fighting McNutt	Trips to Newburg	High life
Charles W. Traughber.....	'10	Fussing	Mechanics	Studying	Strawberry
Arthur P. Deacon.....	'11	Playing the organ	Spanish	Industry	Deac.
Earl McC. Smith.....	'09	Taking care of Van	Advice	Wisdom	Earl
George Lee Parent.....	'11	Arguing	Studying	Sweet disposition	Parent
Jerome Porter.....	'12	Attending classes	Girls	Application	Port
Albert Bower.....	'12	Talking	Football	Good looks	Shorty
Francis J. Flynn.....	'11	Acting	Melodrama	Can't keep still	Lizzie
Russell B. Caples, Jr.....	'10	Doubtful	Society (?)	Peacemaker	Cape



The Miners' Dining Club

Miners' Dining Club



J. W. BODMAN, President

J. R. KENNEY, Steward

Names	Class	Occupation	Chief Fault or Virtue	Party or Religion	Nickname
Branham, W. G.	'10	Hoboing	No room to record faults	Mormon	Geike
Bodman, J. W.	'10	Thinks himself a singer	Rooming with Welsh	Cosmopolitan	B flat
Bribach, O.	'12	Prize fighter	Making trouble	Socialist	Bree
Conover, C. C.	'12	Book agent	Too wise	Hard shelled Baptist	Shark
Cronk, A. H.	'12	Cradle robber	His size	Shouting Methodist	Shorty
Cushwa, C. C.	'12	Dieting	His bearded face	Not old enough	Cupid
Kenney, J. R.	'10	Boosting Chicago	All faults and no virtue	Every-day saint	Hans
Groves, F. W.	'11	Taking care of Runnels	Came from Ames—'nuff said	Atheist	Ames
Harlan, J. D.	'10	Money-maker	Wine, woman and song	Y. W. C. A.	Jack
Haataja, C. L.	'10	Learning English	Cursing the English language	Lutheran	Hot-air
Hayes, D. I.	'12	Hasn't any—too lazy	Over training	Holy Roller	Shadow
Mackey, R. W.	'10	Riding Water-wagon	Virtueless	W. C. T. U.	Dana II
Morris, E. R.	'12	Kicking	More kicking	Pessimist	Bob
Runnels, R. W.	'12	Studying the dictionary	Over eating	Anarchist	B. S.
Shaw, T. E.	'12	Losing his R's	Minding his own business	A. P. A.	Yankee
Sherry, H. K.	'12	Rushing ladies	Breaking hearts	Epworth League	Hoosier
Sudhoff, R. W.	'12	Boosting Richmond	Talking	Chemistry	Stats
Smith, E. M.	'09	Advice giver	Van's example	Pagan	4 i's
Strong, A. L.	'11	Guarding Salem Ave.	Living	Latter-day saint	Stout
Welsh, H. L.	'10	Looking after morals of the club	Telling stories	Infidel	"Sister"

The Junior Trip

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"Union Station, St. Louis, Thursday, June 12th."

Specific directions, clearly stated, explicitly conveyed, in perfectly good Bostonese. Accordingly we reported. Twenty of us. The Profs. "Personally Conducted Tour."

From the direction we took one might have fancied we were going on a slumming trip. South St. Louis, however, has much to offer besides breweries and slums. We found limestone quarries—lots of them.

Skipping along like goats, we leaped from crag to crag and descended into the depths. "Here we have some Cambrian sediments, bearing fossil thing-a-ma-bobs and du-jiggers," etc., etc. Hot! Gee!

Prof. Litchman "ducked," so did some of the rest of us. We sneaked through someone's back yard and were chased by some dogs up onto a water wagon—a bona fide sprinkling cart. Prof. Litchman stood on the ground and jeered at us and took our pictures in that humiliating position.

After chasing around the rim of one quarry for seventeen consecutive times, we finally found a car line.

Back to the City.

Barr's had a demonstration of real Directoire gowns on real live models. Well, you know Litchman. Prof. Griswold wouldn't go, but then he is married.

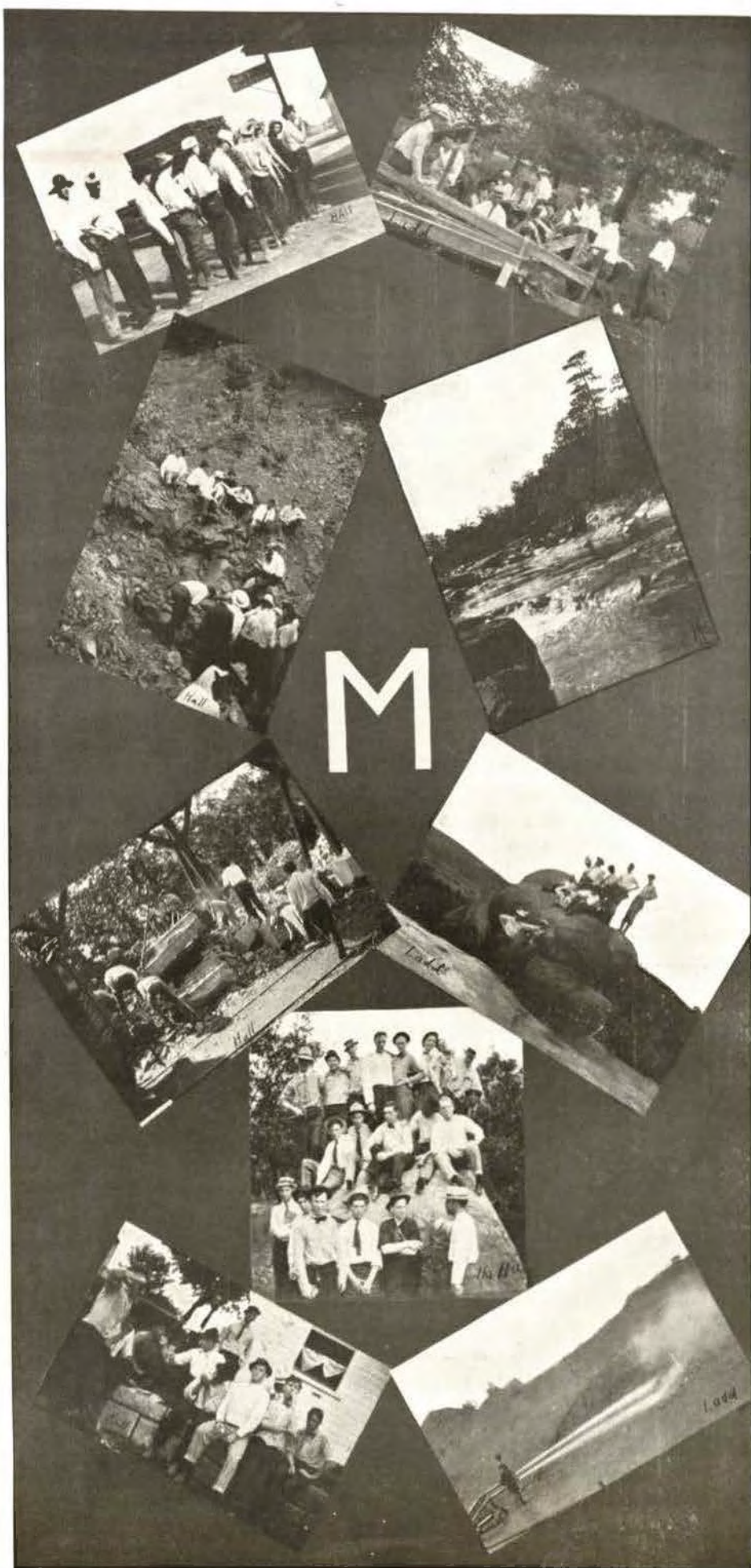
The 3 p. m. Iron Mountain train carried us to Vineland and we were shown some remarkably interesting geological phenomena in a section made by a cut and tunnel. "Litch" put us on the "hummer" again here. Vineland consists of a dinky station and three houses. One of these palatial mansions can sometimes be used as a hotel. Litch tried to make arrangements for supper, but the landlady did not like Litch, so it was all off. Marooned in Vineland! No train until 9:30! Another dwelling proved to be a store and we learned that baked beans are considered desirable food in Boston and Marblehead.

Dumped us at Ironton at 1 a. m. No hacks; we walked fully three miles to the village inn and found it wasn't the place. They stuck us in a sanitarium, no, a "Sanitorium of Osteopathy." The name accounts for the way the bone doctors stung us. It sure was punk. Dunn and Kibe had to bunk with "Tally" and they were both sore.

Hiked up Shepherd Mountain. "Hep, Hep" was by this time the watchword and we "hep-hepped" up that steep old hill, cheered on by the promise of "a magnificent view from the summit." When the gang got there we waited for "Tubby" Thornhill, who was an hour and twenty minutes behind schedule. The "magnificent view" was only to be had by climbing a tree, hence the view will not be discussed. We learned that Shepherd Mountain has more than one side and that Kibe and Prof. Griswold could talk for hours and not say a thing.

That afternoon we visited "Shut Ins." Much of geological interest and a bully swimming hole. The long rock slide was great until the moss all wore off. Langy insisted that he has found "fossils with bathing suits on."

Raining next morning, but that did not make any difference. We started for Pilot Knob in all of it. Whitener and Hall in seeking an easy way up the hill got lost and had to eat their lunch to save it from being spoiled. The rest of the crowd sought shelter in a wagon and Greg tried to hide in a sack of flour and the flour spilled and was spoiled—all over Clay—see? Clay looked like a dough boy right when he got out in the rain. When the rain stopped we "hepped" for Graniteville. Kibe and Ohnsorg made a record walk and then waited for the sane crowd, who arrived later.



On the Junior Trip

There was something to see this trip. Elephant rocks are good dope. Big upstanding decomposition boulders without an equal in any known locality. The quarries too, are exceptional.

There is a dinky railroad that runs from the quarry to Middlebrook. We had to help to load a car of granite spalls to ride down to Middlebrook, where we could get a train back to Ironton.

At Middlebrook we discovered a place run by one Schmentzenhunger. It was quite a forest—so many "Green Trees." A pot was made up and we had a party. Good party that! The Profs. didn't get invited. Litch came down, but got chased back again.

Gregory took issue with some of the natives about the way they wore their hats and a scrap was only averted by the arrival of our train back to Ironton.

The hacks wouldn't hold us all, so we had to chase back on foot. The three miles had shrunk to less than one, but it is a long road to supper.

Saturday night Clay Gregory and Bill Hall drew the black balls and started to hunt "the miserable wretch" who had a "den in the woods" where he sold the "vile stuff." They located the said M. W., etc., and prepared for a party at "Shut Ins" the following afternoon.

The next morning was Sunday and instead of resting we chased up Pilot Knob again. Here we had services. Prof. Griswold not only preached a "sermon on the mount," but also "harped" on it. Worse than church.

There were two attractions for the afternoon. Prof. Griswold advertised a spook gold mine, located by the aid of ghostly visitors from—some place.

In the evening Sanford, Easley and Kibe went to church. No luck. Boyer also disappointed.

We finally left for Bismarck, where Prof. Griswold ditched us. Litch had gone ahead and we were to meet him in Flat River. At Bismarck we found there was no train for twenty-four hours and even though Bismarck is a wet town we couldn't see twenty-four hours good there. Compton got busy and found rigs for everybody and we drove the ten miles.

Hit the Kingsland House about supper time to the surprise of Litch and the disgust of the landlady. Easley smoothed things over and we had good grub once more.

Flat River is a memory of mines, mills, diamond drills and walking.

The courtesy shown us by the officials of the Federal Lead Co. and the St. Joseph Lead Co. is a bright spot in the trip. Trolley rides, carriage rides, and personally conducted tours, gave us a fine insight into mining and milling methods in the greatest straight lead camp in the world.

Litchman dropped us here and the hoodoo went with him. Langy stayed and he was worse than any hoodoo that ever happened. A telephone message from the Director caused a sudden packing of suit cases, a scramble to pay the landlady, and a rush for the trolley to DeLassus.

The next stop was in Fredericktown. That's a good place. A real live hotel, plenty of white people and all glad to see us. Bunny Whitener took us all around, showed us the town, introduced us to the leading citizens and made us feel right at home. Prof. Harris and Prof. Copeland joined us and we had a week of strenuous work.

Through the courtesy of the officials of the North American Co. we were allowed to inspect the mine and most of the smelter of the only Cobalt and Nickel property in the United States.

Mr. S. W. Hall, of the Madison Lead Co., gave us the freedom of their property and we sure did worry them some.

Harry Martin and a bunch of the town fellows gave us a party in the hotel parlors. It was brought to an end by the landlord informing us that it was 2 a. m.

Fredericktown was the breaking-up place, and we left with a pleasant memory and nine 'rahs for the town and the people.

It was a good trip. The Director and his assistants played square and made friends. It seems that a Prof. is human if you get him away from the class-room and don't talk "shop."

With pleasant memories for the good times and a laugh for the inconveniences, we look back over the incidents of the trip.

Summer divides the time between the trip and the strenuous work of the last year before our trip into the world of work begins. May the latter journey be as well conducted and as care-free as the memorable one just chronicled.



"Goog" gets held up

LYNTON



When the girls come out of School



The Y. M. C. A. was first organized at the Missouri School of Mines in 1904 and its growth since that time has been steady and substantial.

The association occupies rooms in the old mining building, where the regular meetings are held. Friday evenings are devoted to talks by the members of the faculty, ministers or business men of the town. The Bible class meets Sunday afternoons in the association rooms.

The object of the association is primarily the development and direction of the spiritual and moral side of student life and in this respect its sphere of influence in the school is constantly increasing.

Among the other activities of the association may be mentioned the summer correspondence with prospective students and the work of locating new men at the beginning of the year.

The association conducts a first-class lecture course for the entertainment of the students and the people of the town. This course is a recognized feature of the intellectual life, not only of the school, but of the community.

Arrangements are under way through which the association will occupy a large house near the campus of the school. By this means the association hopes to increase many fold its influence in the spiritual and social life of the college.

Y. M. C. A. OFFICERS.

Outgoing:

D. W. Blaylock.
J. C. Clark.
J. K. Foreman.
G. A. Stroup.

President.
Vice-President.
Treasurer.
Secretary.

Incoming:

A. A. Park.
M. H. Detweiler.
J. K. Foreman.
S. E. Hollister.

MEMBERS.

J. K. Foreman.
C. A. Pierce.
H. O. Garst.
J. C. Clark.
Chas. L. Haataja.
S. E. Hollister.
Monroe Farrar.
J. R. Kenny.
D. F. Don.

Albert Park.
E. G. List.
E. J. Wolf.
M. H. Detweiler.
Shiv Raj.
C. C. Conover.
F. E. Townsend.
Walter Harrison.
R. C. Ham.

K. C. Frazer.
Anton Karte.
R. A. Bingham.
A. N. Detweiler.
Walter Dobbins.
F. A. Royden.
W. N. Clark.
J. D. Harlan.



Peter Jimmie

Association of Cosmopolitan Clubs

M. S. M. CHAPTER



"Above all Nations Stands Humanity"

Seeing the need of better fellowship, and a closer relation among foreign students and those interested in foreign students, on the night of February 6th, 1909, eleven students, representing eight different countries, assembled.

Much interest in this meeting was taken by those present, and after an interesting talk by each person it was unanimously decided that an organization should be perfected and that it should become a member of the National Association of Cosmopolitan Clubs.

The Secretary of the National Association is this year located at Cornell. It is an organization composed of chapters that are established in about twenty of the leading universities of the United States. Besides the National Association there are organizations of like nature in foreign countries with which the National Association keeps in touch.

The object of the M. S. M. Cosmopolitan Club is to promote a better understanding of the political, economic, and mining problems of different countries; to foster the spirit of universal brotherhood, to promote friendly and commercial relations and a higher standard of order and justice between different nationalities, and to aid and assist the National Association in the cultivation of the Arts of Peace and the establishing of strong international friendships.

The Missouri School of Mines is probably the first mining school in the United States to become a member of the National Association. It will be particularly beneficial and interesting in an institution of this kind, as one of its first objects will be to have its members and visitors become acquainted with all the details of mining and the mining fields of all the represented countries.

CHARTER MEMBERS M. S. M. CHAPTER.

W. S. Branham, Pres., U. S.
E. Cavazos, Vice-Pres., Mexico.
C. L. Haataja, Finland.
A. Shah, Russia.
Tirso Castillon, Mexico.
G. Garcia Lozano, Mexico.
S. Jochamowitz, Peru.
H. Boza, Peru.

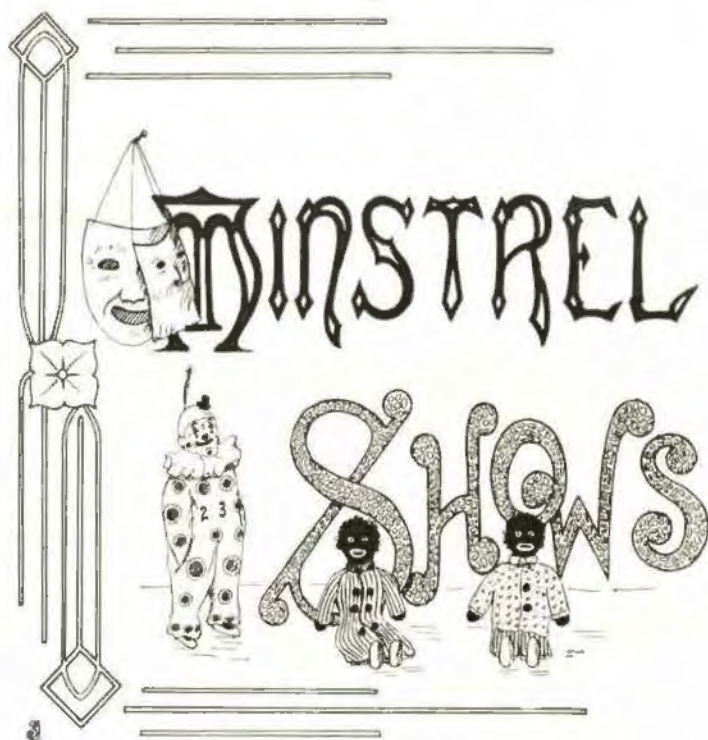
J. W. Bodman, Sec., U. S.
V. Elicano, Treas., P. I.
C. Ellmore, Peru.
J. M. Lamadrid, Cuba.
J. R. Kenney, Canada.
Shiv Raj, India.
Emilio Diaz, Chili.



The Cosmopolitan Club



The Colonial Minstrels



The Colonial Minstrels

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On the night following the first performance of the "Colonial Minstrels" the young ladies of Rolla gave a second performance of their excellent show, the proceeds being donated to the Rollamo Board.

Mrs. Millard Faulkner and Mrs. N. A. Kinney designed the stage settings, which were novel and appropriate. A shock of ripe corn, pumpkins, great black cats, and a full yellow moon lighting the scene, made an appropriate atmosphere for the time—Hallowe'en.

Miss Roberta Rowe acted as the interlocutor. She is eminently well fitted for such a position, grace, dignity and a striking type of beauty all combining to make a picture to be remembered.

The "end men" were of course the feature of the evening. A clever quartette they made in their eccentric costume and black face make-up. Miss Katherine Harrison and Miss Marguerite Cole did the clever specialties and a bit of "team work" that was timely and original. Mrs. J. A. Gregory and Miss Grace Ary, the "bone ends," were unsurpassable. Mrs. Gregory's stump speech was especially keen, while Miss Ary's "Ode to the Freshmen" aroused shouts of laughter and enthusiasm.

Miss Mary McCrae sang two solos. One, "The Honeymoon Trail," was especially adapted to her clear, high soprano voice. The other, "In Dear Old Grandma's Day," was accompanied by a graceful minuet figure. Miss McCrae's tall, willowy type of beauty was particularly suited to the quaint Colonial garb and huge picture hat which she wore.

Miss Rowe's soubrette songs, "I'm Strong for You" and "Love Me Like I Like to be Loved," were highly successful, causing one young student to eat a whole programme and another youth to shrink to almost inappreciable volume.

Miss Grace Powell sang "Ding Dong Bell" in a very pleasing manner. Her rich soprano voice was well displayed in the rotund tones of the chorus. Her

brilliant, dark eyes and striking complexion made a beautiful picture in the "spot light."

Mrs. Wishon sang two numbers, one a light selection and the other a more elaborate and diversified one, which gave great opportunity for the display of her powerful, sweet and highly coloratura soprano voice. She received numerous encores, to which she responded graciously.

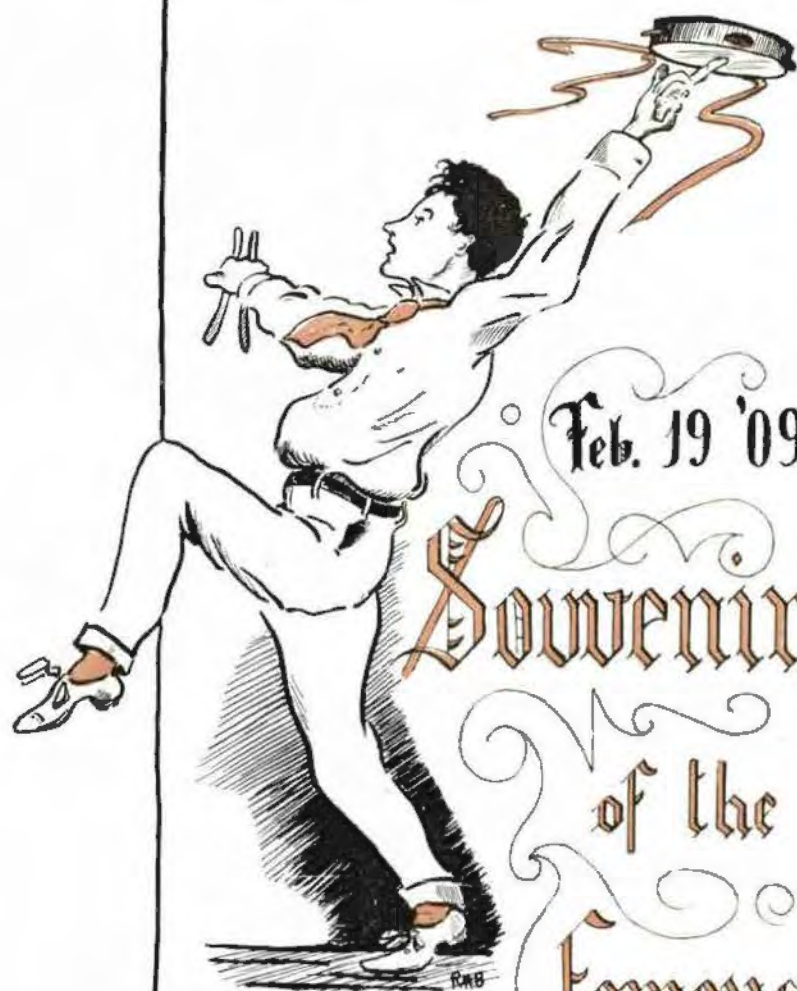
The Indian chorus of the second part was a charming idealization. The chorus of pretty Indian maidens accompanying Miss Grace Powell was one of the hits of the evening. A clever dance and beautiful costumes, aided by good electrical effects, made the number the best of the evening.

Miss Lillian Clark played the accompaniments and contributed greatly to the success of the show. Her ability as a pianist and thorough sympathetic rendering of the music was characteristically her own.

Many other features of the show deserve mention, but space forbids.

The Rollamo Board takes this opportunity to thank the young ladies of the cast, whose pictures appear on page 158. Their worthy efforts added very materially to the financial standing of the book and furnished a most enjoyable evening of music, beauty, and wit.





Feb. 19 '09

Souvenir
of the
Famous
Miners' Minstrels

The Miners' Minstrel Show

x

EXECUTIVE COMMITTEE, 1909

PROFESSOR COPELAND.....	Chairman
"TECHNOLOGY" KENISTON.....	Director of Music
"BUCK" OWEN.....	Programmes
"BILLY" HALL.....	Stage Setting
"JACK" HARLAN.....	End Men
"HAL" WOLF.....	Electrical Effects
"RED" FORRESTER.....	Jokes
"SISTER" WELSH.....	Circle
GEO. A. EASLEY.....	Business Manager

In view of the fact that the Minstrel Show was such a great success, both financially and otherwise, it has been decided to make it an Annual affair, under the management of an Executive Committee. This committee shall elect their successors before retiring from office, and shall have full power to decide all matters appertaining to the performance and the disposal of the proceeds.

EXECUTIVE COMMITTEE, 1910

PROFESSOR COPELAND.....	Chairman
RED FORRESTER	JACK HARLAN
VAN SMITH	ED ENGLEMAN
MICKEY FLYNN	SHORTY TEDROW



The Minstrel Show



Oh yes, everybody knew it was going to be —, but everybody didn't know it was going to be a really show.

As your reporter sat in a gallery seat in the rear of the newly arranged theatre, he was more than surprised to find a large stage protected by a drop curtain. Of that curtain we shall have to speak again, but in passing we do want to suggest that the word "asbestos" be lettered upon the curtain for the sake of the peace of mind of the large audiences; this is the custom throughout the country. There is magic in the word asbestos beyond anything that the actual material can produce.

The people began to come in with that leisurely assurance which is characteristic of Rolla people. There was somewhat of a flutter, different from the usual even anticipatory buzz, for most of these people, especially the girls, expected to be mentioned, which pleased them. But the tenor of the mention was likely to be plus or minus, which made them fidget, especially the girls. To be tickled and annoyed is to be fluttered.

The audience got noisy. Without half trying, one could frequently hear a treble giggle and a bumtone guffaw. The curtain was the cause of it all; for its advertisements, at first glance merely the usual cigar, chewing gum, or breakfast food signs proved to be interesting.

"Great guns! Look at the orchestra!" Each member of that body wore *his* dress-suit. The effect was fine—and when they started to play, that audience subsided to listen in awe-struck whispers.

Muffled by the intervening curtain a true melody came to anxious ears. The curtain rose, the song was pleasing. Then the eyes of the people ran along the line of the chorus in the effort to recognize familiar faces, but dazzled by the fine quality of the stage setting and the imposing presence of that orchestra, they simply sat back and listened, forgot themselves and enjoyed.

There were long hours of practice back of that preparation. Keniston had trained the orchestra well indeed—but that his men were faithful was certainly proved by the good results. Mrs. Garrett at the piano—and they tell me that she attended every practice—seemed to keep things going smoothly. The singing was well enunciated, mellifluous. The stage was decorated with college pennants, tastefully arranged; Bill Hall had done a good piece of work. The whole effect was splendid.

The End Men took our eyes. Engleman, Flynn and little Tedrow, facing Forrester, Harlan, and Van Smith, were a comical crew. Rube Morgan seemed to be ready to address the intellectual assembly upon some solemn subject like "Bureaucracy." Instead, he eased our minds by saying "Mr. Red, Oh! Mr. Red." That started the fun. When people are delighted, but not deeply moved spiritually, a foolish joke awakens an abandon—this produces merely merriment, a very good rest for the mind. Your reporter, who was appointed some two weeks after the event, failed to make any note of the jokes—and does not care to try to reproduce them. They were as a rule ridiculous, and were ten times better than stage jokes usually are.

Pretty soon came Jack Harlan in costume appropriate. It changed his looks some to appear in black-face and crimson clothes, and another look at the program was necessary in order to be sure that it was Jack. He was a catchy coon. His song runs through my mind now. I've heard it again and again on the streets and in the house. This proves that it took. The accompaniment was better than good, and the chorus was carried in a manner harmonious.

The gradually quieting applause left the old flutter. The jokes began again. The End Men warmed up by their work, got the swing of it, and so the crowd got the nonsense just as it was intended. There was a little threat on the program that the faculty would be visited with revenge for sundry stale jokes told to tired students "from year to year." Certain members of the faculty waited with hesitating breath, but waited in vain; for the quibs the End Men recited for the faculty were just mildly funny. For the end men thought they knew on which side their bread was buttered.

We had never noticed before this night that there was something of the devil in those twinkling blue eyes of "Mickey" Flynn. Perhaps the black, covering up his red cheeks, served to uncover the demon. We noticed on the program that "Mickey" didn't claim to be a songster. We are glad of it. Yet he did sing pleasingly and the crowd enjoyed an encore.

Red Forrester was actually devilish in delight as he joked his victim during the third round. The other end men were just as ready. It was fun.

Then Teddy Tedrow rendered a selection, "All the girls look good to me." We wish this word "rendered" to be interpreted in the sense which is understood when "rendered lard" is spoken of. Tedrow boiled all the music out, but made the thing sound good. It wasn't a song, just a series of tones; but the accompaniment helped. Altogether the number was pleasing. We remember his pivotal motions and his vigor.

We cannot think of the jokes that came next for Engleman's "Bon Bon Buddy." Hungry surprised us when he began to sing—actually to sing. He had a body swing, regular minstrel style, to emphasize the time. Bon Bon Buddy made a hit.

Hinky Dink, Hinky Dee—of all the silly, persistent jingles, this is the limit. The idea of singing the jokes was not original, but Hinkie Dee was the best carrier we have ever heard.

When Bill Hall sang "What Do You Read in the Fire Light," only the light of a pleasant grate fire illumined the stage. The song was quite well given, very pretty, and the chorus was the best of the whole show.

The mandolin club made a first appearance. The music was very fine. We did notice, however, that the mandolin club were stingy about giving encores.

"There Is No Love Like Mine," so sang Buck Owen. It was a song with lots of swing. The circle, understanding, helped the expression by an easy synchronous movement. We started to put graceful where synchronous is written, but we remembered that very few men succeed in lifting their feet with noticeable grace.

Flynn and Tedrow put on their melodrama. Description would be tame, but it was thrilling—silly. Flynn, as the pawnbroker's daughter, had a touching melancholy voice. Tedrow was a hero, we could see it in every act.

The final chorus left us in a good humor, and having been assured by Mr. Easley that the next night's show would be different and decent, we determined to come and bring our girl.

That second night Van Smith sang "Broke" in a way that left us sad and happy. He hung his head down dejectedly, "When you're hungry and you're thirsty, and you've nothing left to soak, B-r-o-k-e spells broke."

Bodman solemnly sang "Gee, I Wish I Had a Girl." He looked disappointed too, but then he did that for effect.

Senor Carlos Elmore sang a few Spanish songs. He intended to sing only "La Golondrina," but the audience liked the music so well, though they could only guess what it meant, that they called Elmore back to sing some more to that spot upon the ceiling.



M. S. M. Minstrel Troupe and Orchestra

Mr. Harold Welsh sang "Waiting." The start was wrong, so we waited for them to start again. It was an ethereal theme as we remember it. About the same time somebody lost his little finger, which bothered him, amused the audience, and chagrined Mr. Welsh.

The male quartet songs were not as good as some of the numbers had been. They did sing well, and the more we heard the more we liked it.

Final Chorus Again, —

All in all the minstrel show was great. It will be worth all the trouble it takes to give such a thing each winter, for it's pleasure to attend. To those who initiated, to those who trained the minstrel, the School of Mines is grateful. That the show was a financial success was evident when Manager Easley posted a statement showing a net earning of nearly \$200, which was given to the Rollamo.

PERSONNEL

"RUBE" MORGAN

Interlocutor.

"Billy" Hall	"Buss" McCrae
"Sister" Welsh	Macomber
"Puss" Irvin	"Gladys" Smith
"Dutch" Riede	"Stunts" McNair
"Jimmie" Hanes	"Dutch" Gosrow
"Freshman" Leavitt	"B Flat" Bodman
"Jonsey"	"Mose" Wolf
"Brother" Earl Smith	"Bob" Mackey
"Cupid" Gray	"Noxy" Natchman
"Dunc" Smith	"Bugs" Cody
"Dosie"	"Buck" Owen

Bone Ends

"Red" Forrester
Jack Harlan
Van Smith

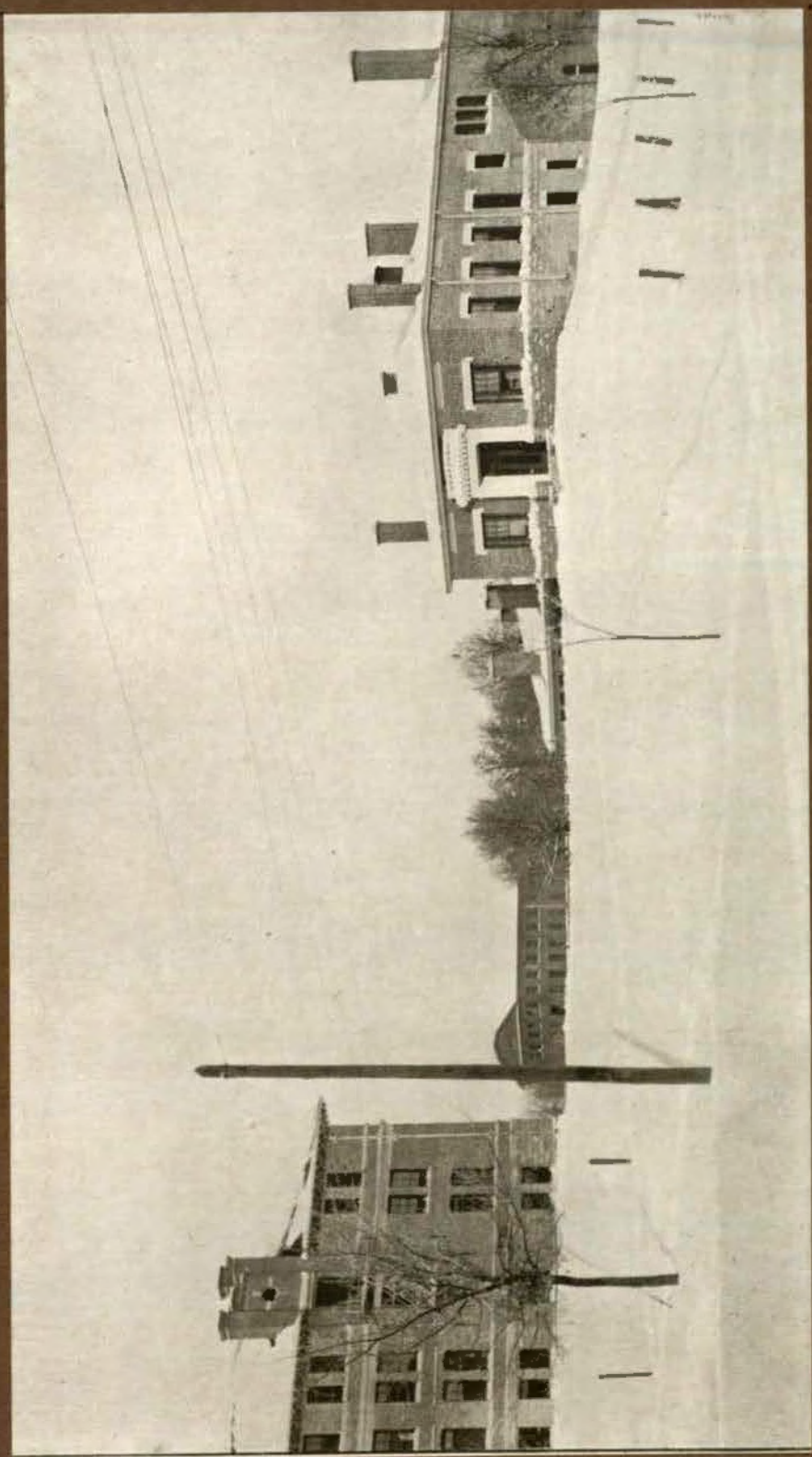
Tambo Ends

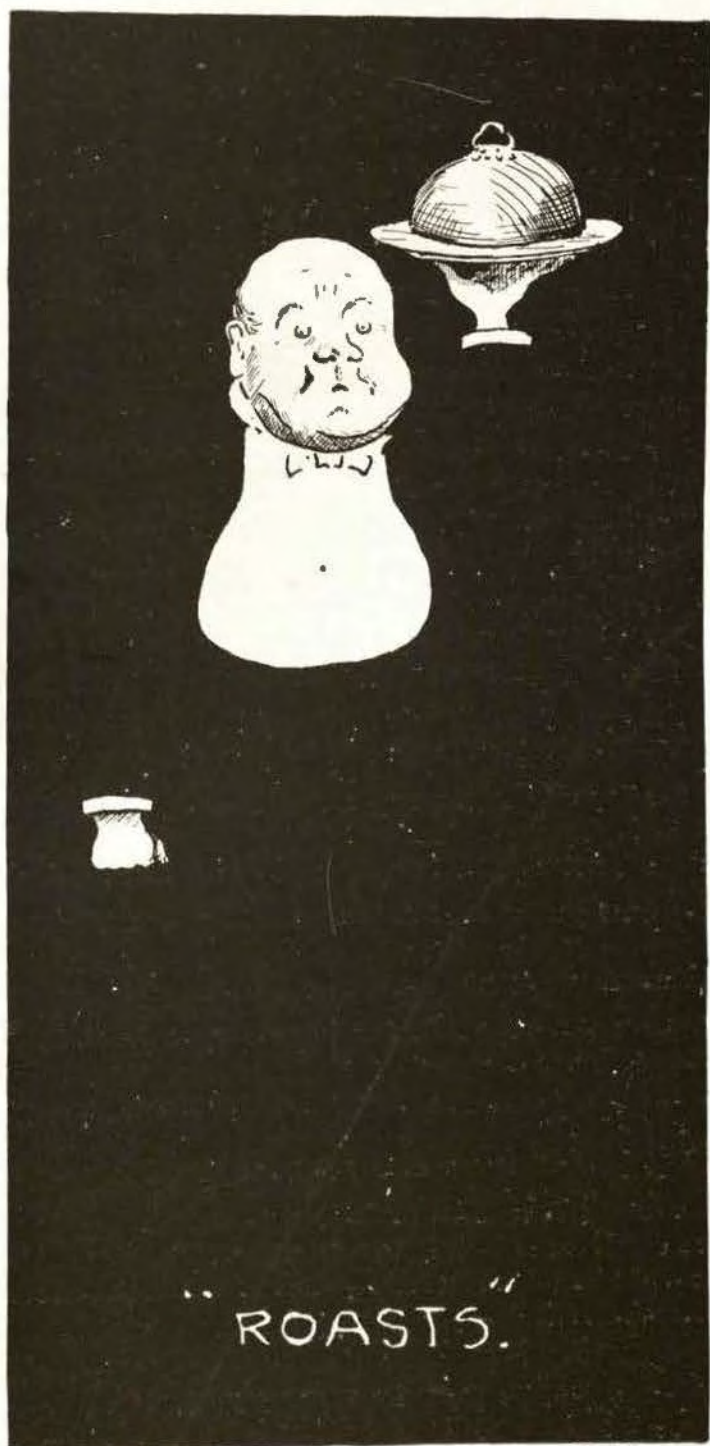
"Hungry Ed" Engleman
"Mickey" Flynn
"Shorty" Tedrow

ORCHESTRA

C. W. Keniston, Director.

Coaske, 1st Violin.
Karte, 1st Violin.
Professor Garrett, 2nd Violin.
Jochamowitz, Flute.
Jno. W. Scott, Clarinet.
Dr. A. E. Wood, 1st Cornet.
Mitchell, 2nd Cornet.
Roy Weber, Horn.
Nachtman, Trombone.
Kenney, Bass Violin.
Elmer List, Drums and Traps.
Mrs. L. E. Garrett, Pianist.





Roasts and Hash



We hear that Tedrow has been again accused of violent behavior. Evidently he is so small that he cannot contain himself.

We regret that we are unable to publish Prof. Dean's superannuated joke about the sending of ideas by express and freight. This joke is known to all except Freshmen, and after all, what does a Freshman know?

The "co-eds" are organizing a new local Sorority. Charter members: Welch, W. N. Clark and Gladys Smith.

We see that a local preacher recently gave a discourse on "Rubbish." We can quite easily believe it.

Tedrow: "Just because you come from England, it doesn't necessarily follow that you speak good English."

Butler: "No. But because you come from the United States, it necessarily follows that you don't."

Pete Abbott, who rooms with Johnny Stewart, complains that he is only allowed to decorate his walls with one picture of his girl, whilst there are twelve of "Johnny Stew's." Johnny says that this is the Democratic ratio.

Beard: "Miss —, you look unhappy." (Tries to hold her hand.)

Miss —: "Why shouldn't I? You've been here four hours."

Freshman (reading a Rollamo notice): "What is this 'Annual Board,' anyhow?"

"Windy": "It's an institution by which the students are annually bored."

Anxious Inquirer: "How can the Freshmen keep their little caps on their heads?"

Answer: Vacuum pressure.

Mr. Clay Gregory (leading a little dog, lounged up to the R. R. ticket office window): "Must I take a ticket for a puppy?"

Ticket Agent: "No, I guess you can travel as an ordinary passenger."

OVERHEARD AT A BASEBALL GAME.

(After a long fly which the fielder muffed.)

Prof. Garrett: "Looks as though that ball were wet."

Prof. Bowen: "Shouldn't . . . be . . . surprised. Look . . . at . . . the . . . way . . . that . . . guy . . . soaked . . . it!"

APPROPRIATE QUOTATIONS.

Prof. Copeland	I Corinthians, 14:40
Hinsch	Proverbs, 18:22
Leming	Proverbs, 24:33
Hall	Proverbs, 29:5
Barrett	Proverbs, 16:2

Prof. Howe: "A brick is artificial stone. Mr. Forrester, do you know of any kind of a brick that is not covered by this definition."

Red Forrester: "A brick of cheese."

Prof. Copeland: "In leaching sulphide ores, how would you prevent the base metals from going into solution?"

Butler (suddenly waking up): "Well, dilute the water."

A paper, marked with a large "F," in blue chalk, was found in the geology lecture room. The paper read as follows:

"Describe the Archeon and its relations to the Algonceon in superior regions."

"The Archeon is a latter day product and overlies the Algonceon. It is largely of slaty composition and varies from shale to a soft clay." This was all poor Burdick knew, and yet he wondered why he got an "F."

Some of Jobes' discoveries in geology:

"To have abundant minerals it is obvious that an abundance of composition of minerals is necessary. Conversely having an abundance of elements with mineral-making properties continuously undergoing change, i. e., forming minerals, it is equally obvious that an abundance of minerals would be formed."

(Very obvious, Jobes.)

"Isostacy is the power of being malleable."

"Drumlins is material that has filled open textured rocks."

"Isogeotherms is heat concealed as rocks."

Thesis by Joe Bowles: "The evil effects of smelter smoke and its effect on cows and farm stock."

Danny Blaylock, when asked to write a paper on "The work of glaciers," mistook the question and wrote upon the "Geological work of vegetables." What Danny said we can't find out, but we hear that it was something as follows: "Take a good stout carrot and hurl it forcibly against the rock and then carefully measure the amount of indentation. Divide this result by the square root of 2 and the result will be the erosive power of 1 carrot. Vegetables are very soluble in rain water, forming erosive acids, such as carrotic acid, which gives the rocks a decided reddish tinge. Cabbages, when undergoing decomposition, give off noxious gases, which rends asunder the rock masses. Potatoes are very powerful eroding agents, and it is estimated that these humble vegetables cause the soil of Ireland to be eroded away three-quarters of an inch in a million years."

"Watt-hour you doing there?" asked Doc McRae.

"Eating currents," replied the student, shamefacedly. "Anode you'd catch me at it."

"Wire you insulate this morning?" answers Doc.

"Leyden bed."

"Wouldn't that jar you?"

"Can't your relay shunts get you up in the morning?"

"Amperently not."

"Fuse going to do that every day, you can take your hat and go ohm," replied Doc, and the circuit was broken.

Prof. Hynes (entering the Fraternity House with a bag of chestnuts): "Say, boys, I've brought home some more chestnuts."

Chorus of K. A.'s (wearily): "Go ahead, we're listening."

Thirty Years Hence

✕

Being the extract from the Rolla Herald Democrat, for July 6th, 1939.



Professor Dobbins.

✕

Doctor Dudley, Director of the School of Mines, is now at Jefferson City trying to get a State appropriation to finish the East wing of the Metallurgy Building, and to try and get some parting cups and other apparatus, soda and silica being the only apparatus at present available.

✕

Mr. Whatsthatshy Shah passed through Rolla yesterday on his return from Russia, where his new bomb has been used with much success. He speaks quite hopefully of being able to do us a like service some day.



Mr. Whatsthatshy Shah.



Dr Kibe.

Mr. Lajput Raj is here collecting subscriptions for the "Expulsion of the English from India" Fund. Whilst we wish Mr. Raj luck, we don't like to foot the bills for his country's amusements.



Mr. Lajput Raj.



Mr. W. S. Hall.

Mr. W. S. Hall paid our town a visit last week. Mr. Hall is now representing the Green Tree Mining Co. of Middlebrook, Mo. He has several large blocks of Treasury Stock which he is offering to his old friends at reduced rates. Mr. Hall vouches for this property, and he knows.

Mr. Ralph Watson, we are pleased to hear, has been elected vice-president of the Western Federation of Miners. Mr. Watson's old friends are very glad to hear of the honor that has justly come to him, as they will recollect vividly his early struggles for an education.

Timothy Paddy Dunn is with Armour & Co., at their Union Stock Yards, Chicago, where he is busy daily chasing squealers to the guillotine.

Mr. Windy Holm returned to Rolla last night after a long journey South. Mr. Holm announces his intention of signing up as a full Sophomore and staying here until he gets his degree.

Echoes from the Classrooms



Cocky Wise (to Dr. McRae): "How do they ground a wire for use in wireless telegraphy in mid-ocean, where the water is very deep?"

"An isogeotherm is a large soft worm that bores into rocks." Stewart.

W. N. Clark: "I dug on that integral until five o'clock this morning."

Prof. Dean: "Did you get the idea?"

Clark: "Yes. It just began to dawn upon me."

Prof. Griswold: "Suppose in a mine, your vein ran directly into an igneous formation, 2,000 feet thick, and your ore-body terminated there, as far as you could see. Now, if you were a mining engineer, what would you do?"

Clay Gregory: "Quit!"

Mose: "My primary teacher first called my attention to my remarkable memory."

Dr. McRae: "A little bug called the toreador eats the telegraph poles in swampy districts."

Johamsandwich (interrupting): No! No! Treadors are men. Men don't eat telegraph poles!"

Prof. Copeland: "Now...if...I...go...too...fast...for...you...fellows...just...let...me...know. Now, there are a thousandandone different waysofsampling. I willmentiontheseduringthenextfiveminutes."

A new mineral, Limelight (limonite). Discovered by Lynton.

(Asked for at the stock room window:) "Myrtle Orange and two brunettes."

Prof. Copeland, discussing why it takes more fuel to smelt at a very high elevation.

Kibe: "Well, why is it that you can't cook beans in boiling water on a mountain top?"

Prof. C.: "Well, we aren't smelting beans, Mr. Kibe."

Prof. Dudley: "What are the breaking parts of the Dodge Crusher?"

Mazany: "The feed."

Prof. Dean (to his Sophomore class): "Men who have studied the functions of the human body claim that they can tell what a man is by what he eats. Should this be true, it is very obvious that some of the members of this class must have overindulged in lobster salad yesterday."

Prof. Harris: "Mr. Garst, what determines the capacity of a distributing reservoir?"

Garst: "The dimensions of it."

Prof. Copeland: "Mr. Easley. Explain the principle of the Root Blower."

Easley (of the scientific mind): "Well, it sucks and it blows."

Dr. McRae: "Mr. Bowles, give an illustration of expansion and contraction caused by heat and cold."

Joe Bowles (after a long think): "Well. In the summer when the days are hot they become very long, and in the winter when the days cool off they get very short."

Question: "What is a chain?"

Answer: "A contraption which some poor rough-neck will have to lug up and down hill, over valley and stream, for 30 per."

Question in Masonry: "What is the most important destructive agent for natural stone and why? How tested for?"

Reply: "Wind. A stone of the desired size is weighed and sand is blown against it for some time, after which the stone is again weighed. Loss in weight gives the destructive power of the sand."

Volume 36, the ponderous volume from which we are supposed to derive our knowledge in Economic Geology, was deliberately stolen on the night of January 23rd, 1909.

As hours do come and days do go
The Economic Class doth show
Its agony.
We hear of mud and Kitchi beds,
Of Mona schists and sandstones reds
And Negaunee.

Old Keweenaw our plight has seen
And sent us help, by wisdom keen,
From spooks.
He sent us spirits down by night
To pick a lock and break the blight
Of books.

The book was swiped, the text is gone,
And he who took it got a "Con"
No doubt.
Yet while the blessed news was dawning
"We'll have a paper here this morning"
Broke out.

Long live the man who subtly took
From out the desk that awful book,
Vol. 36!
For neither Prof. nor we are able
To tell the rocks without the label
In such a fix.

Another book is in its place.
O! Spirits, whisk it into space!
That we may no more sit and doze,
But sit and listen, like old Mose. —Anon.

Doctor Dudley (to Dozie, after a Quiz): "You seem to have a pretty hazy idea of ore dressing."

Dozie: "Well, your questions don't correspond with my notes."

Prof. Copeland: "Now, theoretically, if you had an infinite number of these vats arranged in series and the necessary electromotive force supplied, you would have an infinite amount of copper deposited. Now, Mr. Butler, why is it, that in practice, an infinite amount of copper is not deposited?"

Butler: "Because you haven't got an infinite amount of copper."

Prof. Young (in mining): "So you see they have to handle about three billion gallons of water at this mine."

Boyer (suddenly waking up and trying to appear interested): "Is that per minute?"

Dobbins (who had been listening to one of Prof. Copeland's descriptions of how flux and coke is fed into the top of an iron blast furnace and the slag and iron tapped out of the bottom): "Professor, how do they get the ashes out of one of those blast furnaces?"

Dr. McRae: "They were not able to raise figs in the Fresno Valley until they found that success could be obtained by importing and raising wasps to carry the pollen."

Garst: "Professor, would you call that electrical transmission?"

Question (Freshman Chemistry Quiz): "Give the chemical composition of gunpowder."

Brilliant Reply (by Michelsen): " KNO_3 , Glyserene, Graphiate."

(Why not gray hairs and mud, Michelsen? This constant use of graphite is suspicious.)

One of Dobbins' bright questions in geology: "Professor, does that theory apply to underground ores?"



Cavazos is arrested for making a noise!

FROM THE BULLETIN BOARD

"Tow room for rent. Ache, five dollars in the mouth."

"Lost. A bunch of keys. Heydecker." (*Call at the Frisco saloon.*)

"Will sell my Bakers' Masonerry—never been opened—price, \$4. Dobbins."

"The Rollamo will be out on May the first. Don't ask any more fool questions."

Five minutes later: "The Rollamo will be out on May the first. Don't ask the fool any more questions."

x x x

Knocker: "The present pin isn't emblematic of the school. Looks like a pick stuck through a policeman's hat."

"Well. Isn't that emblematic of the school?"

Nachtmann: "That chair has quite a history. It prevented Dosenbach from graduating last year."

Dean: "Too much dosin' back, eh?"

Watson claims that thought is an oscillating harmonic motion and wishes that in cold weather his thoughts were quick enough to speed up and warm his ears.

Leming: "And where do you keep all your farms in England?"

Lynton: "Oh, in the country, generally."

Prof. Thompson (explaining the balance): "Now, here we have a circular screw."

Dobbins: "What language does Chicken Humphries speak?"

Mazany: "He speaks fowl language."

Tedrow (imitating gun-play): "Hands up or I'll shoot you through the heart."

Lynton: "My heart isn't on my right hand side."

Tedrow: "No; but it's on your sleeve."

Not many persons know that the School of Mines has a motto. Perhaps a few of our older and more enterprising Alumni remember the time they climbed up to tamper with the school bell. Possibly they would notice the words "WORK IS VICTORY" engraved upon the disturber of our peace. The bell is old now, yet its message is still good. "WORK IS VICTORY."

Here's to the man who plans things—
Builds things—makes things—
Who prates not of wonders of old,
Nor gloats upon ancestral gold,
But takes off his coat, and takes a hold
And does things.

The Kansas Wheat Fields

x

The farmer stood on the wheat stack,
(Mazany sat on the ground)
Said Mazany to the farmer,
"Do you quit when the sun goes down?"

"Oh, no," said the busy farmer,
"You bet that isn't me,
We work on this here ranch
As long as we can see."

"Well," said the lazy Mazany,
"I guess I'll go to town,
And try and find some son-of-a-gun
That quits when the sun goes down."

McNutt.—"Hey, Cider, give me some tobacco."

Pierce.—"Do you know what it is that you ask of me, sir?"

Mac.—"I call it a most necessary luxury."

Pierce.—"No, indeed. It is a nauseating weed that is consumed by but two creatures, a large green worm and—man. The worm doesn't know any better."

OVERHEARD IN THE LIBRARY.

Bright Student (of Prof. Scott's Soph English Class.)—"Are them 'Spoilers' in?"

Librarian.—"No, 'The Spoilers' has not yet been returned."

Bright Student.—"When do you reckon they will be back?"



New Books

x

"All About Everything".....	Earl Smith
"Love's Labour Lost".....	Boyer
"The Ladies' Home Companion".....	Teddy Lynton
"The Day's Work".....	Durkee
"How To Be Happy Though Married".....	Hinsch
"Kibe's Metallurgical Series, "The Smelting of Beans"....	Vol. I.
"Butler's Modern Art, "Portraits of an Englishwoman," (with 208 illustrations)	
"Cross Country Walking for Girls".....	J. C. Compton
"Barrett's Fraternity Manual".....	(Fifth Edition)
"Stale Jokes I Have Heard" (and repeated).....	Clay Gregory
"Guide to Eastern Colleges".....	Mazany
"Bomb-throwing as a Pastime".....	Shah
"Frenzied Finance".....	Easley
"Royalty I Have Met".....	Leming
"The Colour Line".....	Raj
"The Cub Reporter".....	Schultz
"Mellin's Food as a Diet".....	"Goog"
"Vanity Fair".....	Stewart
"Thrice Told Tales".....	Dean and Leming
"A Thankless Task".....	The Rollamo Board
"Sand as a Flux for Silica".....	Mazany
"Puppy Love" (with explanatory notes from the personal experiences of the author).....	J. Kissme Beach

Technical phrases illustrated.



1 A conductor carries a current.

Personal Notes from Some of Our Subscribers

x

T. E. Phelps, '06, has been in the engineering corps of the Gunnison tunnel continuously since graduation, and now has the rank of Junior Engineer, U. S. Rec. Service. He is stationed at River Portal, Col.

A. D. Terrel, '99, is Superintendent of the Spelter Department of the Mineral Paint and Zinc Co., De Pue, Ill. He has been with that company for eight years.

J. E. Kirkham, '95, has specialized in structural steel work and has had a varied and creditable experience. He is now Assistant Professor of Civil Engineering, Iowa State College.

J. O. Hendricks, '02, Anthony, N. M., is active in engineering work, chiefly in connection with irrigation.

G. E. Lyman, '02, Chief Engineer, Madison Coal Co., Edwardsville, Ill. This company is operating many mines and the engineering work carries serious responsibility.

W. B. Mix, '08, assistant to Mr. Lyman, is making good, and is pleased with his work.

F. J. Kersting, '97, Kansas City, Mo., is one of the firm of Hughes & Hammond, and is active in selling and designing steel.

R. A. Barton, '05, is with the White Valley Irrigation and Power Co., of Vernon, B. C.

Dr. Amand Ravold is medical director of the Missouri State Life Insurance Co., of St. Louis.

R. P. Garrett, Instructor in Drawing in 1898, is a member of the firm of the Missouri Bridge Co., with offices in the Fullerton Building, and shops in East St. Louis, Ill.

A. R. Ponder, '95, with his telephone and brick interests is becoming one of the substantial business men of Cape Girardeau, Mo.

Edward Church has been at Centralia, Ill., for the past few years, where he has been busy surveying in the coal mines, and other general engineering work.

H. G. Spencer, '93, is with the Mazapil Copper Co., at Conception del Oro., Mex.

R. H. DeWaters is Chief Chemist of the Corn Products Refining Co., at Granite City, Ill.

R. E. Armstrong, '08, has an important position as Mining Geologist, at the Highland Boy Mine, Bingham Canon, Utah.

C. L. Lintecum, '05, holds a responsible position at the Liberty Bell Mine, Telluride, Colo.

A. D. Wilson, '02, and B. J. Snyder, '07, are making good in the chemical department of the Laclede Gas Co., St. Louis.

D. D. Dunkin, '05, has been elected Professor of Mining, and J. J. Brown, '05, has been elected Professor of Metallurgy in the Oklahoma School of Mines and Metallurgy, recently established at Wilburton, Oklahoma. Dr. G. E. Ladd, former director of the Missouri School of Mines and Metallurgy, is President of this Institution.

M. B. Burgher, '05, is City Engineer of Hannibal, Mo.

R. F. Rucker, '05, is Assistant Superintendent of the Atlas Portland Cement Co. plant at Hannibal, Mo. R. E. Hofman, '05, is Engineer and J. S. Schnitzer, formerly '04, is Chemist of the same company.

C. M. Hummel, '05, is in the metal tag business in St. Louis.

P. A. Phillipi, '08, is continuing his studies at Rose Polytechnic, Terre Haute, Ind.

C. W. Caples, '07, is a member of the firm of Herndon & Caples, Mining Engineers and Chemists, at Salmon, Idaho.

C. M. Laizure, '05, holds a responsible mining position at Millers, Nev.

A. A. Thomas, '05, and Geo. V. Bland, '04, are engaged in mining at Ketchikan, Alaska.

J. D. Shanks, '06, is with the U. S. Rec. Service at Lujane, Colo. L. J. Foster, '04, is in the same service at Montrose, Colo.

J. E. McGrath, '76, is with the Coast Geodetic Survey at Washington.

W. C. Richards, '07, is chemist of the American Steel Foundries at Granite City, Ill.

G. H. Boyer, '08, is Assistant Chemist of the Continental Portland Cement Co., at Continental, Mo.

A. H. Fay, '02, is on the editorial staff of the Engineering and Mining Journal, New York, N. Y.

Mr. F. W. Harper, '08, is following his profession at Courtland, Ariz.



Dr. Dudley's Breakfast

Alumni

MISSOURI SCHOOL OF MINES AND METALLURGY ROLLA, MISSOURI



Alexander, Curtis, 1884	San Louis Potosi, Mexico, Box 132.
Alexander, R. C., 1903	Denver, Colo.
Alexander, Thompson, 1901	Chaffee, Mo.
Ambler, J. O., 1906	Cananea Club, Cananea, Sonora, Mexico.
Anderson, P. B., 1897	Fort Madison, Iowa.
Armstrong, R. E., 1908	150 N. W. Temple, Salt Lake City, Utah.
Baker, C. A., 1908	Fort Madison, Ia.
Baker, A. G., 1907	Great Falls, Mont.
Barker, Ralph, 1898	
Bartlett, A. B., 1907	Cheyenne, Wyo.
Barton, R. A., 1906	Nelson, British Columbia.
Bean, W. Y., 1878	Street Dept. of St. Louis, Mo.
Bedford, R. H., 1906	Conception Del Oro, Jac, Mexico, Campania Minera.
Bell, F. R., 1903	Bartlesville, Okla.
Benedict, R. R., 1908	Kansas City, Mo., 649 Park Ave.
Black, J. K., 1904	Clayton, Mo.
Bland, George V., 1904	Ketchikan, Alaska.
Bowles, J. H., 1908	Lake Springs, Mo.
Boyer, G. H., 1908	Jefferson Barracks, Mo., c/o Continental P. C. Co., R. F. D. No. 8.
Brooks, J. M., 1906	Fundicion, Sonora, Mexico. Asst. Supt., Campania Metalurgica y Refindora Pacific.
Brown, J. J., 1905	Oklahoma School of Mines, Wilburton, Okla.
Brown, W. E., 1907	Denver, Colo.
Brown, W. R., 1878	
Buckby, D. W., 1901	Red Metal Mining Co., Butte, Mont.
Burgher, M. B., 1906	Hannibal, Mo.
Buskett, E. W., 1895	Collinsville, Ill.
Cameron, J. S., 1897	Lehigh, Okla.
Caples, J. W., 1905	Salmon, Idaho.
Carnahan, T. S., 1904	Ogden, Utah.
Carson, Arthur C., 1880	Butte, Mont.
Chamberlain, H. C., 1905	Cornelia Copper Co., Gila Bend, Ariz.
Chamberlain, Santiago, 1900	Conception Del Oro, Jac, Mexico. Campania Minera.
Christopher, J. K., 1905	317 Board of Trade Bldg., Kansas City, Mo.
Clark, G. C., 1899	Tucson, Ariz.
Clary, J. H., 1905	Wallace, Idaho.
Claypool, W. M., 1884	Hollywood, Cal.
Cole, G. W., 1887	Deceased.
Cook, E. E., 1907	Plattsburg, Mo.
Cook, P. R., 1907	Aura, Nev., Elko County.
Conrads, R. A., 1904	Agujita, Coah., Mexico.
Coppedge, L. L., 1878	Deceased.
Cowen, H. C., 1898	Cementon, N. Y.
Cowles, F. R., 1901	Kansas City, Mo., 16 E. 34th St.
Cowperthwaite, Thos., 1905	Box 794, Warren, Ariz.
Cullings, Jay, 1886	Pueblo, Colo.
Cummins, R. P., 1905	3865 Page Ave., St. Louis, Mo.
D'Arcy, A. I., 1903	Mina, Nev.
Dailey, C. M., 1902	c/o Edward Flad, St. Louis, Mo.
Davis, Floyd, 1883	416 Iowa Loan and Trust Bldg., Des Moines, Ia.
Dean, G. R., 1890	Rolla, Mo.
Dean, G. W., 1897	Box 2, Venice, Ill.

Deegan, F. J., 1875	Deceased.
Delano, L. A., 1904	Bonne Terre, Mo.
DeLay, T. S., 1894	Ouray, Colo., Camp Bird Co.
Draper, J. C., 1901	Lebanon, Mo
Dudley, Boyd, Jr., 1908	Rolla, Mo.
Duncan, G. A., 1874	Nelson, Nev.
Dunkin, D. D., 1904	Oklahoma School of Mines, Wilburton Okla.
Dwyer, E. P., 1895	Joplin, Mo.
Dyer, T. E., 1894	Rolla, Mo.
Eardley, A. E., 1897	Carriso Springs, Texas.
Emerson, C. G., 1876	Pittsburg, Kans.
Ericson, J. T. E., 1907	Pittsburg, Pa.
Fach, C. A., 1900	St. Louis, Mo.
Fay, A. H., 1902	Editorial Staff, Engineering and Mining Journal, New York.
Fellows, A. P., 1907	Joplin, Mo.
Fernandez, A. L., 1900	c/o C. E. Martinez, Saltillo, Coah., Mex.
Florreich, Phillip, 1895	St. Louis, Mo., U. S. Eng. Corps.
Foster, L. J., 1904	Montrose, Colo.
Fowler, J. D., 1908	Hughesville, Mo.
Fraizer, I. P., 1900	Rolla, Mo.
French, C. L., 1908	Bisbee, Ariz.
Fulcher, J. E., 1886	1348 Wilmot St., Ann Arbor, Mich.
Gallagher, P. C., 1884	Leadville, Colo.
Garcia, J. A., 1900	Dering Coal Co., Old Colony Bldg., Chicago, Ill.
Gardiner, W. A., 1906	El Oro, Mexico.
Garrett, L. E., 1901	Rolla, Mo.
Garvens, O. E., 1876	East St. Louis, Ill.
Gibb, F. W., 1882	Little Rock, Ark., Gibb & Sanders, Architects.
Gill, J. H., 1874	Deceased.
Gill, W. H., 1903	National Zinc Co., Bartlesville, Okla.
Gormley, S. J., 1895	Cerro de Pasco Mining Co., Lima, Peru.
Gottschalk, V. H., 1898	Rolla, Mo.
Grabill, L. R., 1878	Asst. Eng., War Dept., Washington, D. C.
Greason, J. D., 1876	Deceased.
Green, C. T., 1906	Rosario, Sinaloa, Mexico, c/o Minasdel Tajo.
Greenidge, S. M., 1902	Cananea Cons. Copper Co., Cananea, Mexico.
Gregory, J. A., 1905	Rolla, Mo.
Grether, W. S., 1906	Box 253, Greenfield, Mo.
Griffith, W. T., 1906	
Grine, H. A., 1904	3627 Weber Road, St. Louis, Mo.
Grove, C. D., 1896	Skagit Queen Cons. Min. Co., Thunder Creek District, Marblemount, Skagit Co., Wash.
Guntley, E. A., 1906	McGill, Nev.
Hand, H. A., 1906	Salt Lake City, Utah.
Hanley, H. R., 1901	De La Mar Mines, Winthrop, Cal.
Hare, A. W., 1875	Deceased.
Harper, F. W., 1908	Courtland, Ariz., Via Pearce.
Harris, G. W., 1904	c/o Peregrina Mining and Milling Co., Guanajuata, Mexico.
Hartzell, H. H., 1906	Granby, Mo.
Hase, H. C., 1908	Morenci, Ariz.
Hatch, W. P., 1907	Kansas City.
Hatchett, R. H., 1899	Prescott Assay Office, Prescott, Ariz.
Hauenstein, Frederick, 1903	Las Vegas-Tonepah Ry., Beatty, Nev.
Heck, E. C., 1905	Verdi Grande Copper Co., Aptd. 98, Hermosillo, Mexico.
Hendricks, J. O., 1899	La Cruces, New Mexico.
Herdman, G. W., 1894	

Hoffman, R. E., 1905	Portland Atlas Cement Co., Hannibal, Mo.
Horner, P. K., 1906	Steptoe Valley M. & S. Co., Ely, Nev.
Hoyer, R. C., 1879	U. S. Engineer Office, Montgomery, Ala.
Hunt, L. H., 1905	Utah-Nevada Mining & Milling Co., Mercur, Utah.
Hynes, D. P., 1908	Rolla, Mo.
Jackling, D. C., 1892	Utah Copper Co., Salt Lake City, Utah.
Johnson, E. M., 1892	Supt., St. Louis Smelting & Refining Co., Collinsville, Ill.
Johnson, H. A., 1908	Elizabethtown, New Mexico.
Jones, E. E., 1908	Globe, Ariz.
Jones, F. A., 1892	Room 4, Armijo Bldg., Albuquerque, New Mex.
Kellogg, G. F., 1908	Skidmore, Mo.
Kersting, F. J., 1897	1108 East 15th St., Kansas City, Mo.
King, C. L., 1904	Cia De Real Del Monte, Pachuca, Mexico.
Kirkham, J. E., 1895	Iowa State College, Ames, Ia.
Koeberlin, F. R., 1901	420 N. 121st St., New York, N. Y.
Lachmund, Oscar, 1886	517 Dooly Bldg., Salt Lake City, Utah.
Laizure, C. M., 1905	Millers, Nev., c/o Chas. C. Moore & Co.
Lehman, J. L. G., 1905	
Lintecum, C. L., 1905	Telluride, Colo.
Logan, L. S., 1903	408 N. 11th St., St. Joseph, Mo.
Lohman, H. W., 1904	Colorado Gold Dredging Co., Breckenridge, Colo.
Long, James C., 1907	Rolla, Mo.
Luther, W. A., 1903	St. James, Mo.
Lyman, G. E., 1902	Edwardsville, Ill.
Lyneman, F. A., 1908	Box 712, Denver, Colo.
McCarthy, J. H., 1905	6609 Florissant Ave., St. Louis, Mo.
McGrath, J. E., 1876	Coast and Geodetic Survey, Washington, D. C.
Mann, H. T., 1908	Rolla, Mo.
Manwaring, E. G. R., 1905	Bisbee, Ariz.
Mapes, H. T., 1908	Oaxaca Iron and Coal Co., La Muta No. 501, Mexico D. F.
Martin, W. G., 1896	United Zinc and Chem. Co., Denver, Colo.
Martinez, C. E., 1902	Saltillo Light Co., Saltillo, Coah., Mexico.
Martinez, J. G., 1886	
May, Lawrence, 1902	Winthrop, Cal.
Millsap, T. H., 1877	Deceased.
Minger, W. C., 1876	
Minor, C. E., 1904	Cananea, Son., Mexico, Box 393.
Mix, W. B., 1908	Edwardsville, Ill.
Moore, F. A., 1908	St. Joe Lead Co., Herculanum, Mo.
Moore, S. R., 1905	Wallace, Idaho.
Morgan, G. B., 1904	25 Federal Bldg., Duluth, Minn.
Morris, E. J., 1902	Deceased.
Mortland, E. A., 1901	Hardin, Ill.
Murray, E. P., 1908	Rolla, Mo.
Neer, D. M., 1908	Winfield, Kans.
Nesbitt, W. C., 1905	Soda Springs, Idaho.
Neustreadter, Arthur, 1884	283 Virginia Ave., Jersey City, N. J.
Norton, B. N., 1902	Douglas, Ariz.
Nye, A. L., 1908	Pachuca, Hidalgo, Mexico. Real del Monte Minas Barron.
Ohmann-Dumesnil, A. H., 1877	3553 Park Ave., St. Louis, Mo.
Olmsted, G. L., 1901	Doe Run, Mo.
Owens, J. R. D., 1885	Deceased.
Pack, J. W., 1874	U. S. Mint, San Francisco, Cal.
Pack, J. A., 1877	De Lamar, Idaho.
Painter, W. R., 1882	Carrollton, Mo.
Perkins, E. T., 1899	American Steel & Foundry Co., Granby, Mo.

Perkins, F. H., 1899	American Steel & Foundry Co., Granby Mo.
Perkins, W. C., 1907	Plattsburg, Mo.
Phelps, T. I., 1906	Dept. of Interior, U. S. Geol. Survey, River Portal, Colo.
Philippi, P. A., 1908	5156 Maple Ave., St. Louis, Mo.
Phillips, W. I., 1907	717 College Ave., Wheaton, Ill.
Pickles, J. L., 1902	1310 River St., El Paso, Texas.
Powell, F. B., 1906	Rolla, Mo.
Powell, W. H., 1901	St. Clair, Mo.
Price, E. E., 1904	Bingham Canyon, Utah, Ohio Copper Co.
Price, J. M., 1904	La Plata, Colo.
Prugh, J. I., 1905	Gold Park Mining Co., Banning, Cal.
Quinn, M. V., 1905	Quartzburg, Idaho.
Reid, J. C., 1893	Supt. of Mines, Southwestern Coal and Improvement Co., Colgate, Okla.
Rex, H. M., 1902	Douglas, Ariz.
Richards, W. C., 1907	5583 Bartmer Ave., St. Louis, Mo.
Rivera, Ramon, 1906	Guadalajara, Jal., Mexico.
Roesler, H. A., 1903	2726 Prospect Ave., Kansas City, Mo.
Rogers, J. A., 1903	Cochite Gold Milling Co., Bland, New Mex.
Rogers, H. F., 1899	2914 Louisiana Ave., St. Louis, Mo.
Rolufs, R. T., 1901	Herculaneum, Mo., St. Joe Lead Co.
Ross, Beauregard, 1882	Suite 329-334 Symes Block, Denver, Colo.
Rucker, R. F., 1906	Hannibal, Mo., Atlas Portland Cement Co.
Sandford, J. J., 1908	Wardner, Idaho.
Schrantz, A. B., 1882	
Schroeder, J. S., 1904	Peabody, Kans.
Schulze, H. O., 1899	Wonder, via Fairview, Nevada.
Schulze, E. V., 1903	
Scott, J. B., 1907	Rolla, Mo.
Seamon, F. H., 1891	El Paso, Texas.
Sebree, J. P., 1907	La Junta, Colo.
Sedivy, Miles, 1908	Garfield, Utah.
Seltzer, A. J., 1907	Imperial School of Mines, Wuchang, Province of Hupe, China.
Shanks, J. D., 1906	Lujane, Colo., Geological Survey.
Sheldon, W. E., 1905	Sterling, Colo.
Smith, C. D., 1905	Webb City, Mo.
Smith, L. X., 1880	Houston, Mo.
Snyder, B. J., 1907	Mallinckrodt Chemical Works, St. Louis, Mo.
Soest, W. E., 1899	Chihuahua Copper Co., Chihuahua, Mexico.
Spencer, C. B., 1893	Joplin, Mo.
Spengler, Albert, 1901	2626 Holly St., Denver, Colo.
Stauber, I. J. H., 1901	Shattuck-Arizona Copper Co., Bisbee, Ariz.
Steinmesch, J. H., 1906	Desloge Cons. Lead Co., Desloge, Mo.
Stevens, J. V., 1906	Clayton, Mo.
Stewart, A. J., 1891	Tecalitlan, Jal., Mexico.
Summers, E. B., 1881	5432 Howe St., Pittsburg, Pa.
Sunada, Sakuhei, 1907	143 Michigan Ave., Chicago, Ill.
Taylor, H. J., 1899	Seattle, Wash.
Taylor, J. M., 1905	Philadelphia, Pa.
Tayman, F. J., 1899	Los Grados, Guerrero, via Rio Balsas, Mexico.
Terrell, A. D., 1898	411 East St., Iola, Kans.
Thomas, A. A., 1905	Ketchikan, Alaska.
Thomas, W. S., 1894	Bevier, Mo.
Thompson, R. C., 1904	Rolla, Mo.
Thornhill, E. B., 1908	Fredericktown, Mo.
Torrence, E. C., 1898	Arkansas & Choctaw R. R., Ardmore, Okla.
Torrence, L. C., 1897	
Tseung, T. C., 1907	c/o Miss Harriet Noyes, "True Light" Seminary, Am. Presbyterian Mission, Canton, China.

Tweed, W. J., 1904	Houston, Mo.
Tyrrell, F. L., 1892	Salem, Mo.
Underwood, J. R., 1899	
Van Devander, H. N., 1882	Cedartown, Ga.
Van Frank, R. P., 1885	Little Rock, Ark. Asst. Eng. U. S. Gov.
Vitt, J. T., 1907	Glen Carbon, Ill., Madison Coal Corporation.
Walker, J. E., 1903	El Paso, Texas, Room 702 E. P. & S. W. Bldg.
Walsh, F. H., 1902	Chief Elect. Engineer, Guanajuata M. & M. Co., Guanajuata, Mexico.
Wash, E. R., 1907	c/o C. & A. Mining Co., Wilcox, Ariz.
Watkins, J. C., 1901	Joplin, Mo.
Webster, R. S., 1903	Havana, Cuba.
Weidner, F. H., 1903	1102 East St., Iola, Kans.
Weigel, W. M., 1900	Pennsylvania State College, State College, Pa.
Wiles, G. B., 1887	
Wilfley, C. R., 1905	Cabrera Mines, Hostotipaquillo, Jal., Mexico.
Wilson, A. D., 1902	148 Rutger St., St. Louis, Mo.
Wilson, F. L. L., 1908	Steptoe Valley Smelting and Mining Co., McGill, Nev.
Wilson, F. W., 1884	Milliken Bros. Iron and Steel Mfg. Co., London, England.
Wilson, Fremont, 1885	Matthews, Ind.
Winters, C. F., 1879	Teller, National Bank, Los Angeles, Cal.
Wishon, W. W., 1881	Austin, Nev.
Wood, Clyde Rex, 1908	Pachuca, Hidalgo, Mexico, Real del Monte Minas Barron.
Woodhall, Geo., Jr., 1901	Desloge Lead Co., Desloge, Mo.
Woods, Clarence, 1904	Franks, Mo.
Wright, I. L., 1907	Silver City, N. Mex., Savanna Copper Co.
Wyman, W. C., 1906	Anchor Coal Co., Ottumwa, Ia.
Yeater, M. W., 1886	Sedalia, Mo.
Zirulick, Hyman, 1908	Minsk, Russia.

GRADUATE STUDENTS.

Ambler, John Owen*	B. S. in M. E. 1906, School of Mines, Cananea, Mexico.
Burgher, Mark Bernardie*	B. S. in C. E. 1905, School of Mines, Hannibal, Mo.
Delano, Lewis Alfred*	B. S. in M. E. 1904, School of Mines, Bonne Terre, Mo.
Dudley, Boyd, Jr.	B. S. in G. S. 1908, School of Mines, Rolla, Mo.
Forbes, Carroll Ralph	E. M. 1903, Michigan College of Mines, Topeka, Kans.
Foster, Leo Joseph*	B. S. in M. E. 1904, School of Mines, Montrose, Colo.
Horner, Preston King*	B. S. in M. E. 1906, School of Mines, Ely, Nev.
Hunt, Lamar Horatio*	B. S. in M. E. 1905, School of Mines, Mercur, Utah.
Hynes, Dibrell Pryor	B. S. in G. S. 1908, School of Mines, Rolla, Mo.
Lintecum, Charles Lafayette*	B. S. in M. E. 1905, School of Mines, Telluride, Colo.
Long, James Carter	B. S. in M. E. 1907, School of Mines, St. Louis, Mo.
Mann, Horace Tharp	B. S. in M. E. 1908, School of Mines, Rolla, Mo.
Murray, Edwin Phelps	B. S. in M. E. 1908, School of Mines, Fosterville, Wis.
Quinn, Matthew Vincent*	B. S. in M. E. 1905, School of Mines, Quartzburg, Idaho.
Rivera, Ramon*	B. S. in C. E. 1906, School of Mines, Guadalajara, Mex.
Rucker, Ray Fleming*	B. S. in M. E. 1906, School of Mines, Hannibal, Mo.
Smith, Charles Dosh*	B. S. in Chem. and Met. 1905, School of Mines, Webb City, Mo.
Wilfley, Clifford Redman*	B. S. in M. E. 1906, School of Mines, Hostotipaquillo, Mexico.

* In Absentia.

L'Envoi

x

It is not quite all joy and gladness at Commencement. To most of us it is indeed a time when long deferred hopes are at length realized, a time when we can look forward to a new start in life, fairly along the road at last. And yet—even such a time as this is not altogether without its touch of sorrow; for who is he that has spent four long years in Rolla and has not formed some ties and friendships that he does not care to break? Of course, not all of us have to dissolve the friendships that we have formed here—not all of our lives lie apart. Yet for most of us, our duty takes us in different directions, for the Mining Engineer must be prepared to roam in many lands. Some go South and some West, whilst others cross the seas and go to foreign lands—all of us to face our difficulties alone and to solve sterner problems than ever we faced here at M. S. M.

A few short weeks and the class of 1909 will be forever scattered, but its memories will cling for many years yet. Probably many a one of us will wish himself back here again; but, having set our hands to the plow, we must not look back.

Meanwhile, our place here knows us no more, for others have already filled it, the new men arriving to fill the vacant ranks with pretty much the same thoughts and aspirations as we had four long years ago. For many of us the curtain is about to fall on Rolla forever, yet let us hope that it will always remain a pleasant memory and that we shall be true to our Alma Mater and to the traditions of our school.

And so to old friends and comrades, to familiar scenes and faces
Adieu!

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All terminates, one lonely way.
We go; and ‘Is he gone?’
Is all our best friends say.”

—Landor.



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